



OECD Economic Surveys

UNITED STATES



**OECD
Economic Surveys**

United States

2008



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 30 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

Also available in French

Corrigenda to OECD publications may be found on line at: www.oecd.org/publishing/corrigenda.

© OECD 2008

OECD freely authorises the use, including the photocopy, of this material for private, non-commercial purposes. Permission to photocopy portions of this material for any public use or commercial purpose may be obtained from the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) contact@cfcopies.com. All copies must retain the copyright and other proprietary notices in their original forms. All requests for other public or commercial uses of this material or for translation rights should be submitted to rights@oecd.org.

Table of contents

Executive summary	8
Assessment and recommendations	11
Chapter 1. Key policy challenges	23
The economic context is difficult	24
Public finances are not on a sustainable path	36
Underlying prospects for economic growth remain favourable	38
But there is much income inequality and it is rising	40
Substantial reductions in CO ₂ emissions will be required if international efforts to combat global warming are to succeed	46
Macroeconomic policy challenges	50
Policy challenges in overcoming the financial crisis (Chapter 2)	50
Policy challenges in health care reform (Chapter 3)	51
Notes	52
Bibliography	53
Annex 1.A1. Progress in structural reform	55
Chapter 2. Overcoming the financial crisis	57
The anatomy of the crisis	59
Short-term crisis resolution	79
Longer-term crisis prevention	87
Concluding remarks on the lessons from the crisis	95
Bibliography	97
Annex 2.A1.	99
Annex 2.A2.	102
Chapter 3. Health care reform	105
Population health status is lower and health expenditure is higher than in many other OECD countries	108
A growing proportion of the population is underinsured	122
Reforms to extend health insurance coverage	127
Medicare reforms to improve value for money	133
Notes	137
Bibliography	140

Boxes

1.1. Did the boom in subprime lending contribute to the sharp increase in house prices?	26
1.2. The simulated effects of a decline in household wealth	29
2.1. How subprime mortgages were transformed into AAA-rates securities	64
2.2. Are mortgage borrowers walking away from their obligations?	71
2.3. Holdings of mortgage-backed securities were financed with highly complex and leveraged structures	77
2.4. The Federal Reserve's new liquidity operations.	81
2.5. Policy recommendations to contain the disruptions caused by the financial crisis.	86
2.6. Models of financial regulation based on a "unified" cross-sectoral approach	88
2.7. Policy recommendations for financial prevention	96
2.A1.1. Key features of the main categories of mortgage loans	99
2.A2.1. The current regulatory structure of US financial markets	102
3.1. Some health-care reform proposals in the public domain	106
3.2. The gap in health-care services between high- and low-wage workers is widening.	125
3.3. The origins and budget cost of employment-based health insurance.	128
3.4. The health-insurance reform package in Gruber's (2008) micro-simulation.	130
3.5. Massachusetts health-insurance reform	132
3.6. The Sustainable Growth Rate mechanism to control growth in Medicare expenditure on physicians' services and related services	136
3.7. Recommendations for improving value for money and insurance coverage in health care	137

Tables

1.1. Simulated macroeconomic effects in the FRB/US model	29
1.2. Near-term projections	35
1.3. Developments in income distribution.	43
1.4. Relative poverty rates (50% median income), around 2000	44
2.1. Terms of credit facilities for depository institutions.	81
2.2. Terms of credit facilities for primary dealers.	82
2.A1.1. Underwriting characteristics of loans in MBS pools	101
3.1. Health-care workforce per 1 000 population and physician incomes, 2006	117
3.2. Health Services capacity and use, 2006.	118
3.3. Availability and use of sophisticated medical technologies, 2006	119
3.4. Adults aged 19-64 who were uninsured or underinsured, by various characteristics	123
3.5. New insurance pool for individuals and small groups with subsidies and changed tax exclusions	131

Figures

1.1. House prices relative to income and to rent	24
1.2. Foreclosures have soared	25
1.3. US financial conditions have tightened	26
1.4. House price developments in selected OECD countries	28
1.5. Headline and core inflation	30

1.6. Monetary and fiscal stance	30
1.7. Aggregate economic indicators	32
1.8. Current account imbalance	34
1.9. The CBO's long-term primary expenditure and revenue projections for the federal government	37
1.10. The CBO's long-term projections for federal debt held by the public	38
1.11. Evolution of growth in potential GDP and productivity	39
1.12. Decomposition of growth in labour inputs	41
1.13. Decomposing potential GDP per capita, 2007	42
1.14. Relative poverty among the working-age population and social spending, around 2000	45
1.15. Greenhouse gas emissions	46
1.16. CO ₂ emissions intensity of output	47
1.17. CO ₂ emissions per capita per sector	48
1.18. Share of taxes in premium unleaded gasoline prices	49
2.1. Household liabilities in selected OECD countries	60
2.2. Total mortgage originations by type	61
2.3. High-risk securitised mortgage lending, 2004-06	62
2.4. Outstanding mortgage loans, end 2007	63
2.5. Typical capital structure of Alt-A and subprime mortgage-backed securities	65
2.6. Interest-only and negative amortisation loans: share of total mortgage originations, 2000-06	66
2.7. Credit assets held by the financial sector	67
2.8. House prices	68
2.9. Mortgage delinquency rates	69
2.10. Existing regulatory and supervisory structure for mortgage origination	70
2.11. Interbank market spreads	73
2.12. The rise in bond spreads	75
2.13. Federal Reserve assets	85
2.14. The regulatory framework proposed in the Treasury blueprint	88
3.1. Life expectancy	110
3.2. Trends in life expectancy	111
3.3. Premature mortality	111
3.4. Potential years of life lost adjusted for external causes	112
3.5. Infant mortality rates	113
3.6. Health expenditures per capita	115
3.7. Health expenditure in relation to GNI per capita, 2005	116
3.8. Panel regressions: Years of life which are not explained by the general model	120
3.9. Average annual health-care expenditures, by wage status	125
3.10. Out-of-pocket expenses as a share of total health expenditures	128

This *Survey* is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.

The economic situation and policies of the United States were reviewed by the Committee on 10 September 2008. The draft report was then revised in the light of the discussions and given final approval as the agreed report of the whole Committee on 7 November 2008.

The Secretariat's draft report was prepared for the Committee by David Carey and Andrea De Michelis with Statistical assistance from Laure Meuro, Roselyn Jamin and Jessica Hoel, under the supervision of Patrick Lenain.

The previous *Survey* of the United States was issued in May 2007.

This book has...



StatLinks 

**A service that delivers Excel® files
from the printed page!**

Look for the *StatLinks* at the bottom right-hand corner of the tables or graphs in this book. To download the matching Excel® spreadsheet, just type the link into your Internet browser, starting with the <http://dx.doi.org> prefix.

If you're reading the PDF e-book edition, and your PC is connected to the Internet, simply click on the link. You'll find *StatLinks* appearing in more OECD books.

BASIC STATISTICS OF THE UNITED STATES

THE LAND

Area (1 000 sq. km)	9 826	Population of major cities, including their metropolitan areas, 2007 (thousands):	
		New York-Northern New Jersey-Long Island	18 819
		Los Angeles-Long Beach-Santa Ana	12 950
		Chicago-Naperville-Joliet	9 506

THE PEOPLE

Resident population, 1 July 2007 (est.) ¹	301 621 157	Civilian labour force, Q3 2008 (thousands)	154 730
Number of inhabitants per sq. km	30.7	of which:	
Annual net natural increase (average 2001-05)	2 843 400	Unemployed Q3 2008 (thousands)	9 213
Natural increase rate per 1 000 inhabitants (average 2001-05)	4.1	Net immigration (2006) thousands	1 204

PRODUCTION

Gross domestic product in 2007 (billions of USD)	13 808	Origin of national income in 2007 (per cent of national income): ²	
GDP per head in 2007 (USD)	45 707	Manufacturing	12.0
Gross fixed capital formation		Finance, Insurance and real estate	17.7
Per cent of GDP in 2007	18.8	Other business sector services	28.5
Per head in 2007	8 609	Government and government enterprises	11.8
		Other	29.9

THE GOVERNMENT

Head of state: President Bush (Republican) from January 2001 to January 2009
President-elect: Obama (Democrat)

Government consumption, 2007 (per cent of GDP)	16.0	Composition of the Congress as of January 2008:		
Government current receipts, 2007 (per cent of GDP)		Democrats	256	56
Federal government debt held by the public (per cent of GDP), end of year 2007	34.3	Republicans	175	40
		Independent	0	2
	36.9	Undecided	4	2
		Total	435	100

FOREIGN TRADE

Exports:		Imports:	
Exports of goods and services as per cent of GDP in 2007	12.0	Imports of goods and services as per cent of GDP in 2007	17.2
Main exports, 2007 (per cent of merchandise exports):		Main imports, 2007 (per cent of merchandise imports):	
Foods, feeds, beverages	7.3	Foods, feeds, beverages	4.0
Industrial supplies	26.4	Industrial supplies	15.5
Capital goods	38.9	Petroleum	12.1
Automotive vehicles, parts	10.5	Capital goods	22.3
Consumer goods	11.3	Automotive vehicles, parts	13.7
		Consumer goods	23.6

1. Projection.
2. Without capital consumption adjustment.
3. Voting members.

Executive summary

The US economy is going through an exceptionally difficult period after having been hit by converging adverse developments, some in reaction to previous excesses during the upswing, others more exogenous. A sharp downturn in the housing market, a financial crisis and temporarily high commodity prices have caused activity to slow sharply during 2008. This happened at a time when the external position was persistently weak and the fiscal stance had become unsustainable in the long-term – making for a difficult challenge to steer policy between competing objectives. Policymakers have taken actions to support growth and stabilize the financial system, while keeping a careful eye on inflation expectations. It is nonetheless likely that activity will get worse before it gets better. In addition to these short-term severe difficulties, adverse social trends need to be addressed, including incomplete access to health care, the topic of a special chapter in this Survey.

Faced with a confluence of extremely adverse events, macroeconomic policy has moved quickly to provide stimulus. Aggressive cuts in interest rates, large tax rebates and liquidity injection into dislocated financial markets have provided crucial support. Even so, sharp downside risks to growth continue to prevail, reflecting uncertainties on bank solvency and credit supply. Monetary policy stimulus remains necessary in the near term, but interest rates should be raised promptly once the economy revives, so as to avoid igniting price pressures. Resolving the financial crisis will entail accumulating additional fiscal debts, and further fiscal stimulus will be desirable if financial conditions and economic prospects do not quickly improve; nevertheless, strong budget consolidation should be given priority as soon as possible to address the unsustainable long-term fiscal trends.

The most severe housing downturn in decades has triggered large-scale financial disruptions. While the housing market correction needs to run its course, additional measures could be useful to limit further fall-out to the household and financial sectors. The government takeovers of Fannie Mae, Freddie Mac and AIG, as well as the measures taken to recapitalize the financial sector were necessary to support financial market stability but, after the crisis has passed, the system of housing finance should be fundamentally reformed.

Resolving the financial crisis could be a long drawn-out process. A major financial institution failed and several others have been on the brink of bankruptcy, prompting the central bank to extend lender-of-last-resort protection, while the government has introduced a rescue plan to inject capital in distressed financial institutions and to purchase or guarantee troubled assets. If these initiatives are not accompanied by regulatory reforms, they could inadvertently serve to encourage imprudent behaviour on the part of lenders in the future. A major overhaul of regulatory and supervisory policy is necessary to remedy the deficiencies in oversight that the crisis has revealed. The new policy approach should be based on a more unified structure and a strong market-stability regulatory body that can make prudential supervision more coherent. The market for housing financing will also need to be overhauled.

Health-care reform is needed. Despite health spending being much higher in the United States than in any other OECD country, the US population's health status does not compare

favourably on key indicators, in part because many people do not have adequate financial access to medical care. Starting from the present situation, a plan likely to be successful would replace the health insurance tax exclusion with subsidies for individual purchase of insurance and reform the insurance market as needed. There appears to be wide interest for such reform and numerous packages along these lines have been proposed.

Assessment and recommendations

The US economy is going through very difficult times

After a long period of robust growth, the US economy has been struck by a confluence of adverse developments in reaction to past excesses during the upswing, as well as to exogenous shocks. The sharp housing downturn and the associated turmoil in financial markets have led to higher risk premiums, lower equity wealth and tighter credit standards, thereby hurting real activity. This has happened at a time when policymakers already had to grapple with persistent external imbalances and unsustainable fiscal trends. While financial intermediaries have suffered from heavy write-downs, the household sector has also paid a heavy tribute of eroding real incomes, job losses, home foreclosures and declining wealth. The authorities have chosen to provide macroeconomic policy support to avert a prolonged decline of output, while keeping inflation expectations in check, but activity is nonetheless likely to get weaker before it gets better. Over time, these shocks will be absorbed and the economy will return toward its robust path of potential growth. Nevertheless, a variety of fiscal, social and environmental problems needs to be overcome. In this light, the present Survey discusses three important policy issues:

- *Macroeconomic policy to steer through conflicting forces.* The adverse shocks that have pulled down growth are still exerting negative effects, and the negative feed-back loop between the financial sector and the real economy may intensify. Steering a path through the various negative forces affecting the economy poses a severe test for monetary and fiscal policy.
- *Safeguarding and regulating the financial system.* The collapse of the privately-securitised mortgage market has triggered a broad dislocation of the financial system, including outside the United States. The authorities responded by introducing a range of initiatives intended to support liquidity in a number of markets. In addition, they acted forcefully to address the risks posed by the imminent failure of systemically-important financial intermediaries. But these actions run the risk of encouraging further imprudent behaviour in the future. The challenge will be to remain ready for further interventions if necessary, while improving prudential oversight.
- *Moving toward universal access to health care.* US health spending per capita is the highest in the OECD, but health status does not compare especially favourably with other OECD countries and nearly 50 million Americans do not have adequate access to non-urgent medical care. Because rapidly rising health costs contribute to increasing government spending, the challenge is to extend insurance coverage to all without causing a sharp rise in budgetary imbalances.

*Strong headwinds are blowing
from various directions*

The series of negative developments has been exerting a substantial drag on activity since mid-2007. The housing market is going through its most severe correction of the past 50 years, the financial crisis has intensified and commodity prices soared, before easing. The financial sector has been hard hit, with severe write-downs and depressed equity prices. Households have also been hit with job losses, real income cuts, home foreclosures, tighter credit conditions and declining wealth. Acting against recessionary forces, the fiscal authorities have taken aggressive stimulus measures to support consumption, successfully attenuating the slowdown, though only temporarily. In addition, the monetary authority has eased its policy stance considerably. Welcome support has also come from buoyant exports, reflecting a weak dollar. While the economy stood up better than expected given the circumstances in the first half of 2008, labour markets and household incomes have deteriorated. House prices appear to have further to fall, and foreclosures are widely expected to continue to rise. The financial sector faces further difficulties in absorbing losses and recapitalising. Crafting appropriate monetary and fiscal policies will be vital in the context of what is likely to be a severely weakening real economy.

*The financial crisis is affecting household
spending*

The US economy was facing substantial difficulties even before the recent deepening of the financial crisis. Enabled by loosening credit standards, households have borrowed at an unprecedented rate during the past 15 years. Households' saving flows fell close to zero as they increasingly relied on rising stock and housing wealth to achieve their consumption objectives. Consumption expenditure rose above 70% of GDP, an historic record, as households borrowed against wealth to finance consumption, and US household indebtedness at present exceeds that in most other OECD countries. Now that household wealth is declining and credit conditions have become much stricter, consumers will probably have to boost their rate of saving appreciably over time and reduce their reliance on borrowing.

*Activity is likely to contract over the near term,
and there are downside risks*

As the economy confronts these difficulties, real activity is likely to contract over the near term. Once financial conditions normalise, recessionary forces should attenuate and the economy should gradually revive. The collapse of residential investment, following past excesses in the mortgage market, has exerted a strong drag on growth, but this negative contribution will eventually wane. As well, the negative effect of elevated commodity prices, which entailed real income cuts, has reversed, which should attenuate the downturn. Nonetheless, sharp downside risks to growth may aggravate the situation further. Solvency issues at some financial institutions are still a concern, raising the threat of further financial market disruption. The credit squeeze has been spreading from the mortgage market to other forms of lending and could impair the credit market further. The dynamism of exports, which have supported growth as domestic demand slumped, could

disappear if sharply weaker growth becomes a global problem. Overall, macroeconomic policy should stand ready to provide renewed stimulus.

Headline inflation was high

Headline inflation was high for most of 2008. Although commodity prices fell in the second half of the year, their past ascent pushed up headline inflation and core inflation to higher levels than the Federal Reserve would have preferred. Second-round effects, however, have been limited, thanks to reduced margins, wage moderation and dynamic productivity. While some indicators suggested that near-term inflation expectations had moved up temporarily, long-term inflation expectations always appeared relatively well anchored.

Strong monetary policy stimulus is appropriate, but will need to be withdrawn promptly as conditions normalise

Facing strong headwinds and severe financial turbulence, monetary policy has been aggressively eased. In addition, the Federal Reserve has implemented innovative steps to address strains in financial markets and to circumvent liquidity trap risks, by sharply changing the size and composition of its balance sheet as well as by extending credit to nonfinancial corporations. These aggressive steps have helped to boost liquidity, but the full effects of the forceful easing of monetary policy should be felt only after financial market conditions normalise. Monetary policy is now more accommodative than what would be suggested by standard policy rules. However, it appears to be roughly appropriate in light of the adverse effects on real activity of factors such as the financial crisis, including high credit spreads and sharply tightened lending standards. *Monetary policy should remain highly accommodative for quite some time to support the economy and the financial system. However, interest rates will have to be normalised promptly as the economy starts to recover and concerns about a worsening of financial market instability recede.*

A helpful short-term fiscal stimulus...

The 2008 fiscal stimulus package, with rebate cheques worth nearly 1% of GDP sent to eligible households in record time, has provided strong and timely support to aggregate demand. The tax rebate payments boosted household disposable income sharply during the second quarter and a share of this additional income was used to increase consumer spending. The budgetary stimulus should have continued to exercise positive effects on private consumption during the third quarter, but it is expected to wane towards the end of the year. This prospect of a fall-back in consumption has prompted discussions about a second fiscal stimulus package to steer the economy towards recovery. *If financial conditions and the economic outlook do not quickly improve, additional fiscal stimulus would be desirable to firm up prospects for a more rapid recovery. However, given the underlying fiscal situation, the package should aim to be strictly temporary, timely and targeted – like the first stimulus package.*

... but the financial crisis entails large fiscal risks...

Resolving the financial sector's difficulties is requiring substantial government spending, as did past banking crises. The public sector is assuming very large fiscal and quasi-fiscal contingent liabilities. The Federal Reserve, the US Treasury and the Federal Deposit Insurance Corporation (FDIC) have taken indispensable decisions when financial institutions faced sudden liquidity squeezes, but the long-term effects of these actions pose challenges. In the course of facilitating the Bear Stearns transaction and opening a secured lending facility for AIG, the Federal Reserve exposed its balance sheet to the risk of losses from mortgage related assets; if realised such losses would flow through to the federal government. The recently enacted Emergency Economic Stabilization Act of 2008 has authorised outlays of up to USD 700 billion to inject capital into financial institutions as well as to purchase or guarantee a broad array of assets. Large contingent fiscal liabilities stem from the government takeover of Fannie Mae and Freddie Mac. Past banking crises have been expensive in terms of deposit insurance, as shown by the experience of the Resolution Trust Corporation created in the early 1990s to deal with the savings-and-loans crisis, which came with large fiscal costs. Future bailouts, if needed, should similarly be tailored to be highly effective in combating financial-market stress, while protecting taxpayers as much as possible.

... and long-term fiscal trends are unsustainable

Fiscal policy has to deal with other difficult issues in the next few years. In particular, there is strong pressure for reforming the Alternative Minimum Tax (AMT), which will reach a sharply higher number of households starting in 2009 if left unchanged, due to expiring provisions. Similarly, the tax reliefs of 2001 and 2003, which temporarily reduced personal income taxation, are set to expire at the end of 2010. Extending these tax cuts without offsetting budgetary measures would, however, cause additional fiscal gaps. Over the longer term, the ageing of the population and other trends put the federal budget on an unsustainable course. According to the Congressional Budget Office, under current legislation Social security spending on retirement income will increase from 4.3% to 5.6% of GDP in 2055. Even more worryingly, health-related public expenditure (Medicare and Medicaid) will rise from 4.1% to 12% of GDP in 2050, reflecting the combination of population ageing and technology-related rises in health expenditure. In view of this, *the budget should be put back on a course of consolidation as soon as possible, with both expenditure and revenue measures.*

The housing downturn triggered the financial crisis

The trigger for the financial crisis was the wave of subprime mortgage defaults, following sharp falls of house prices from unsustainably high levels. These events caused large losses on mortgage-backed securities, which were often highly rated and therefore thought to be safe, but turned out to be much riskier than expected. Mortgage defaults and foreclosures have soared in the non-prime market, adding to the inventory of unsold houses, crowding out regular house sales and putting market prices under further downward pressure.

Measures have been taken to help distressed borrowers, such as two new programmes to prevent avoidable foreclosures. In addition, the Federal Housing Administration (FHA) has been authorised to guarantee up to USD 300 billion in refinanced mortgages, provided that lenders agree to write down significantly the amount of the loan. While the FHA programme is estimated to help up to 400 000 borrowers (out of some 2.2 million mortgage loans that may enter foreclosure by 2011), it is likely to be too small to solve the housing crisis. Further action could be needed to prevent avoidable foreclosures and ensure that the fall in house prices does not become excessive.

Supervision of mortgage lenders should be tightened

The wave of defaults on subprime and Alt-A mortgages shows that the process of originating these loans was often inadequate. Lending standards eroded across the entire funding chain, from mortgage origination to final distribution. While securitisation is likely to remain an important part of the financial landscape, *stronger supervision is needed at all levels, including underwriters and credit rating agencies*, which faced conflicts of interest between the process of rating instruments and the advice provided to the issuers of and investors in these instruments. Investors' due diligence also needs to be reinvigorated. A good place to start is where mortgage loans are originated and, in this respect, the new rules issued by the Federal Reserve to protect borrowers from predatory lending practices are welcome. As well, legislation has established a federal register for mortgage brokers and developed stronger licensing standards, so as to ensure that mortgage brokers are qualified and properly screened and that prospective borrowers can easily look up a broker's employment history, violations, complaints, and other information. *These rules should be rapidly implemented.*

Housing finance needs to be reformed

The government took over Fannie Mae and Freddie Mac to safeguard financial stability and support the mortgage market. Over time, it will be necessary to overhaul the structure of the market for housing financing. If the government were to continue to play a role in it, public support should be explicit to avoid the ambiguities present in the charters of Fannie Mae and Freddie Mac. Fundamentally, however, it would be preferable to leave the securitisation of mortgages, especially prime ones, entirely to the private sector, as in most other countries. *In order to foster competition and reduce moral hazard, the two government-sponsored enterprises should no longer have access to preferential lending facilities with the federal government; be more tightly regulated and subject to the same regulation and supervision (including capital adequacy requirements) as other issuers of mortgage-backed securities; and divided into smaller companies that are not too big to fail. This would imply that, in due time, new debts issued by privatized GSEs would be explicitly not guaranteed.*

Financial markets remain severely disrupted

Fallout from the financial crisis that started in mid-2007 intensified in late 2008. The financial sector is still experiencing severe problems of confidence, credit availability is restricted in some major markets, liquidity is still lacking and credit spreads are

abnormally high. The first phase of the crisis was confined to the subprime mortgage market and associated leveraged products, but events have been progressing to the broader economy. In the current second phase, some prime borrowers have felt the hit from slowing economic conditions and defaulted on their mortgages. Credit spreads are widening on other markets, such as student loans, and severe liquidity difficulties have hurt auction-rated securities. As the real economy weakens, in particular in energy-sensitive industries such as cars and airlines, a negative feedback loop between the real economy and the financial sector could intensify. The banking system has reacted to asset write-downs by raising fresh capital, but doing so is expensive and difficult in the current environment. Thus, a significant amount of deleveraging is underway, with a severe impact on the supply of credit. The government has responded to these developments by establishing a plan to inject capital into distressed financial institutions and to purchase troubled assets in order to provide the funds needed to normalise conditions.

Gaps in regulatory oversight contributed to the crisis

There is wide agreement that gaps in regulatory oversight are at least partly to blame for the crisis. Many of these gaps were caused by the fragmented structure of regulation, which maintains specialized regulatory agencies across segregated lines of services, such as banking, insurance, securities and futures. While this arrangement may have worked in the past, it is not well suited to the modern financial system. The traditional components of financial services have converged over the past decade and most financial providers now operate across regulatory boundaries. Also, at present in the United States, no single regulator possesses all the information and authority necessary to monitor overall market stability, although there is an increased potential for events triggering a series of defaults affecting the whole financial system and the real economy. Finally, the conduct of business regulation proved weak in the run up to the crisis, enabling the decline in lending standards and, in some instances, deceptive practices. The risks associated with this inadequate regulatory structure have been heightened by the recent shoring up of individual financial institutions, which has increased moral hazard risks. Without tighter prudential standards, the authorities' financial support to failing institutions will encourage imprudent behaviour of market participants in the hope that their losses would be absorbed by the taxpayer in case of failure. *Combating moral hazard costs more effectively should be a major objective of reform to financial supervision and regulation.*

Supervision should be more unified and comprehensive, reflecting financial-sector developments

The Treasury blueprint provides a sensible starting point for addressing these weaknesses, with a proposal to consolidate the current system around three regulators: a *market stability regulator* responsible for overall financial risks potentially impacting the real economy; a *prudential financial regulator* responsible for the supervision of individual institutions, notably those benefiting from a form of government guarantee and therefore prone to moral hazard; and a *business conduct regulator* responsible for enforcing business-related rules, notably protecting consumer interests. However, the framework does not address

explicitly whether it would be desirable to regulate financial institutions that are currently subject to no, or less demanding requirements, but may be or may become systematically important, notably hedge funds and private equity firms. The prudential supervisor needs to have authority over all systematically important institutions and all institutions that have access to the central bank's credit facilities. The market stability supervisor, if it is separate from the prudential supervisor as the Treasury blueprint proposes, needs extensive access to financial sector data to be able to arrive at an independent judgment regarding systemic risks. A number of different institutional arrangements would be consistent with these principles, including the tri-partite approach proposed by Treasury and a "Twin Peaks" model. In the latter case, the market stability and the prudential regulators could be unified within the central bank (as in the Netherlands) which already has considerable responsibility in this area through monetary policy and as lender of last resort to the financial system. An argument can also be made for an independent market stability supervisor (as in Australia or the United Kingdom) to ensure focus on supervisory issues and avoid possible conflicts between monetary policy and prudential concerns. *The credit crisis has thrown into sharp focus the need for a substantial overhaul of US financial supervision. While some progress has been made through informal and incremental cooperation agreements (memoranda of understanding) among regulators, in the longer term a more formal and dramatic process, such as that outlined in the Treasury blueprint, is likely to be necessary. The new regulatory structure should feature unified supervision in line with the current business model adopted by financial conglomerates. The market stability supervisor, whether a separate institution or not, should have access to sufficient information to assess macroeconomic risks and have the tools to promote corrective action if needed.*

*Capital requirements should be reconsidered
and probably tightened*

Many financial institutions, including several large banks, took more risk than was compatible with their capital holdings. Lehman Brothers was one of those, and finally had to file for bankruptcy. Risk-based capital standards should be re-assessed, and tightened where needed to discourage these practices. *Financial institutions should hold capital against off-balance sheet risks and assets held in so-called trading accounts.* The financial crisis has also revealed major risk with the investment banks' highly leveraged business model and the regulatory framework to which they were subjected. The remaining two large investment banks, Goldman Sachs and Morgan Stanley, have become bank holding companies, which puts them under the Federal Reserve's regulatory umbrella and gives them greater access to the Federal Reserve's credit facilities. However, regulatory overreaction should be avoided, as this could encourage the shift of certain financial activities into segments of the financial markets where they would be even further away from the reach of regulators (e.g. hedge funds or offshore). These and other suggestions to overhaul financial supervision and regulation will be important to increase the robustness of the financial system against future stresses. Introducing a greater degree of regulatory enforcement would go a long way towards preventing the recurrence of financial crises and averting their detrimental effect on economic stability. Once repaired, the US financial system will once again play its key role of efficiently intermediating between savers and investors and contributing to economic growth.

The health system does not perform as well as it could

Another challenge facing US policymakers is to improve the performance of the health system. Notwithstanding very high health spending (about 15% of GDP) and the use of cutting-edge technology, the health status of the US population does not appear to fare well by international comparison. The United States ranks poorly in terms of life expectancy at birth, infant mortality and “amenable mortality” (i.e. mortality that can be averted by good health care). While there are factors beyond the health-care system itself that contribute to this below-average health outcome and/or higher health expenditures – such as the relatively high risk of death or injury from violence or accidents, the higher prevalence of obesity and of low-birth-weight babies, and the cost of the medical liability litigation system and the associated practice of defensive medicine – these factors do not appear to explain all of the gap in performance between the United States and other countries.

Inadequate health insurance coverage has a negative effect on life expectancy

A particular source of concern is the large number of people who lack adequate health insurance. It is estimated that 46 million persons were not insured at all in 2007 (16% of the population), with a further large share of the population underinsured. With Mexico and Turkey, the United States is the only OECD country that does not get close to universal health-care insurance. The large majority of the uninsured are people who are not offered health insurance by an employer, because they work in a small firm, work part time or are not employed. Most people without adequate insurance belong to lower-income groups, which have shorter life expectancy than average and have benefitted much less than others from improvements in life expectancy in past decades. It is therefore plausible that the significant and growing proportion of the population that is uninsured or underinsured is one of several factors that help to explain the growing gap in life expectancy between the United States and other countries. Although there are several public insurance schemes (such as Medicare for the elderly and disabled, Medicaid for the poor, and SCHIP for poor children), the number of uninsured is widely considered to be a problem that needs to be rectified. *Making progress towards health insurance coverage for all Americans should be given a high priority on the policy agenda.*

Replace the health tax exclusion for employer-sponsored health insurance with more efficient subsidies

The tax exclusion has played an important role in promoting employment-sponsored health insurance in the United States because it reduces its cost to the employee both by treating compensation in the form of employer contributions to health insurance as tax-free income to the employee and by encouraging the formation of employer-sponsored insurance pools. However, it does not reach workers not offered insurance by their employers and is more beneficial to workers in upper tax brackets, i.e. it is regressive. Moreover, it locks workers into jobs, for fear of losing coverage. Because it is uncapped, the tax exclusion encourages the purchase of more generous insurance plans, notably plans

with little cost-sharing, thus exacerbating moral hazard. *The existing health tax exclusion should be terminated to mitigate these problems*, even though ending the tax exclusion would lead to a reduction in the number of people offered employer-sponsored health insurance, especially among those working for small companies. *The tax revenues resulting from the elimination of the tax exclusion would be available to subsidise the purchase of insurance by individuals in a way that is independent of the choice of health plan*, provided that some minimum standards of required coverage are satisfied. Such subsidies, which could take many forms, such as direct subsidies or refundable tax credits, would improve the current situation in at least two ways: they would reach those who do not now receive the benefit of the tax exclusion; and they would encourage more cost-conscious purchase of health insurance plans and health care services as, in contrast to the uncapped tax exclusion, such subsidies would reduce the incentive to purchase health plans with little cost sharing. *Policy makers should consider means testing these subsidies*. The extent to which such subsidies reduce the number of uninsured will depend on many factors, including their level and structure.

Additional measures to promote health insurance coverage

Even so, further measures are likely to be necessary to expand coverage substantially:

- At present, the individual health insurance market is not attractive, in part because adverse selection risks have led to high premiums compared to their actuarial value, and because administrative costs are high. These problems could be addressed by increasing the size of risk pools and reforming individual and small-group insurance markets by requiring community-rated and guaranteed-issue policies, thus disconnecting the payments from individual health risks.
- This approach would have a greater impact on coverage if accompanied by a requirement to be insured, as otherwise healthy people may choose to be uninsured rather than to pay community-rated premiums, which are higher than experience-rated premiums for healthy people. Bringing these people into the risk pool would also make insurance in the individual and small-group market even more affordable on average. However, such a requirement has its own drawbacks: the complexity of defining the required coverage; the risk that this requirement will become unduly inflated; the inherent reduction in consumer choice; and difficulties in designing and implementing appropriate enforcement mechanisms.

Medicare should enforce stricter cost controls

Public insurance, notably the Medicare programme (for those aged 65 or over and for qualified disabled persons aged less than 65) is also an important insurance solution for many Americans. Medicare expenditure now accounts for approximately 3% of GDP, or about 20% of total health expenditure, and under current trends is projected to rise sharply in the years ahead. Given the scale of the programme, it is important that potential for reducing costs without harming the quality of treatments received by enrollees be exploited. Detailed analysis shows that per capita Medicare spending varies widely across the United States without associated variation in health outcomes. Some hospitals seem prone to high-cost procedures without additional benefit to patients, while others seem

able to provide lower-cost care that proves to be effective. *The authorities should consider ways to enhance the dissemination of information on the effectiveness and cost of treatments and procedures.* Savings could also be made by reducing payments to Medicare Advantage (MA) plans, which provide Part A (hospital) and Part B (medical) coverage as well as medically-necessary services to individuals who choose to receive their Medicare benefits through private plans, to the level paid to providers under the traditional fee-for-service Medicare programme. It has been estimated that payments for Medicare Advantage Plans currently exceed the costs of Medicare Parts A and B by approximately 13% for similar beneficiaries. According to MedPac, a significant portion of these extra payments goes to fund plan administration and profits and not to services for beneficiaries. These extra payments also raise equity concerns as they are funded by all Medicare Part B beneficiaries (through their Part B premiums) and by all taxpayers (through general revenues) while only MA enrollees benefit. In addition, such payments enable MA plans to attract new clients without improving efficiency, a problem underlined by the rapid growth in fee for service plans. A start to overcoming these problems was made in recent legislation, which reduced payments to MA plans and required most fee-for-service MA plans to form provider networks. *This process should be taken further by gradually lowering MA payments to the level for traditional fee-for-service Medicare plans.* Savings also should be made without reducing the quality of health care by introducing more competition into the process for purchasing durable medical equipment. Currently, Medicare administrators are prohibited from harnessing competition or negotiating prices of medical equipment and supplies; instead, they must use fee schedules based on historical charges. On the basis of pilot programmes, it has been estimated that using a competitive bidding process instead of the fee schedules could reduce costs by 26% on average, based on strict criteria for product quality and security of suppliers, without significantly reducing access of beneficiaries to supplies. *Generalisation of competitive bidding for medical equipment and supplies should not be delayed beyond the 18-month period stipulated in recent legislation.*

Pricing carbon emissions to reflect their environmental costs could minimise the economic costs of achieving climate change objectives

US policymakers also face the challenge of reducing growth in greenhouse gas (GHG) emissions in the context of global efforts to combat climate change. The US contribution to these efforts will have an important bearing on their success owing to the scale of US emissions, which are approximately one sixth of the global total. Such emissions have grown somewhat more quickly in the United States than in most other OECD countries since 1990, mainly reflecting higher economic growth, and are much higher in relation to either economic activity or population than in many other countries. Factors that contribute to high US emissions include reliance on traditional coal-fired power stations and high annual distances travelled per capita in vehicles that, on average, have relatively high fuel consumption. Low road fuel taxes may contribute to relatively high annual vehicle miles travelled and household preferences for lower fuel economy vehicles. The US authorities have adopted the targets of reducing the GHG emission intensity of the economy by 18% over 2002-12 and of stabilising GHG emissions by 2025. The government also signed a G8 declaration to cut GHG emissions by 50% by 2050. To support the achievement of these goals, the government is focusing on improving vehicle fuel economy standards, increasing

the domestic production of bio-fuels, and supporting energy R&D for cleaner energy supply technologies, renewable sources, methane capture and use, and nuclear energy. Currently, US bio-fuels are mainly produced from maize-based ethanol. Studies suggest that support for such first-generation bio-fuels programmes is an inefficient means of reducing GHG emissions and has put upward pressure on some commodity prices. The government is also supporting the development of second-generation bio-fuels, which promise to be more efficient but for which significant technical barriers remain to be overcome before commercialisation. *In addition to revising current R&D support to be more technology-neutral, the authorities could price carbon emissions to reflect their environmental costs, either through a cap-and-trade system or a carbon tax.* In this way, emission reductions could be achieved at the lowest economic costs. For substantial global emission cuts to be achieved at a manageable cost, it will also be necessary for other large emitters, countries and sectors to adopt similar policies.

Chapter 1

Key policy challenges

The United States is facing very difficult economic conditions. After a long period of robust economic growth, a protracted downturn in the housing market has triggered a severe financial crisis, which is weighing heavily on real activity. The authorities have vigorously used monetary and fiscal policies to attenuate the downturn in GDP growth. Further support would be desirable, if financial and economic conditions do not quickly improve. As soon as the recovery is firmly established, however, substantial fiscal consolidation will be required to put public finances on a sustainable long-term path. Financial sector regulation will also need to be reformed to overcome the weaknesses exposed by the crisis, in particular by moving to a more unified, comprehensive and objective-oriented model of supervision. Despite recent economic difficulties, the longer-term outlook for the US economy remains favourable, supported by solid productivity growth. Nevertheless, the fruits of growth have not been evenly distributed in recent decades, raising questions about the social sustainability of such growth. There are also growing concerns about highly unequal financial access to health care in the United States, which may contribute to the mediocre health status of the population by international comparison despite very high levels of expenditure. Health insurance reform to give better financial access to health care to low-income persons would help to overcome some equity and efficiency concerns. US greenhouse gas (GHG) emissions continue to be a major contributor to global emissions. Substantial reductions will be required if global co-operation to combat climate change is to succeed. Appropriate pricing on carbon emissions to reflect their environmental cost would allow emission reductions to be achieved at lowest economic costs.

The economic context is difficult

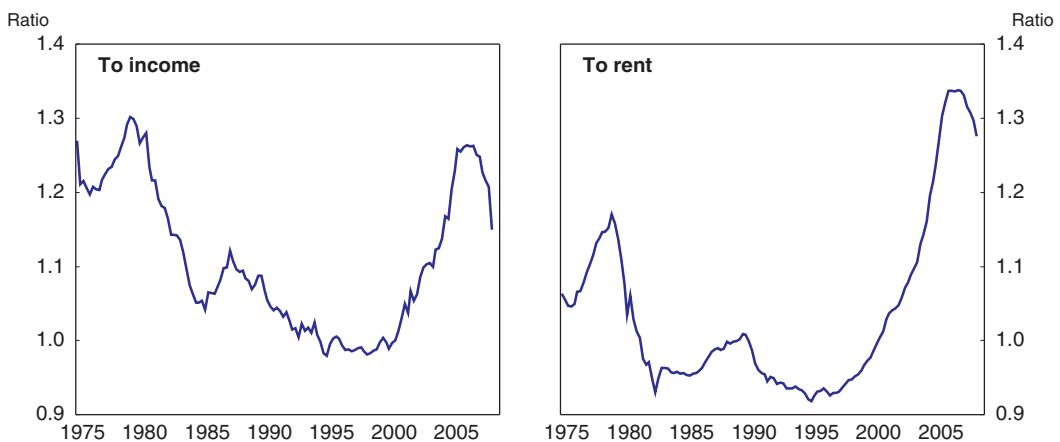
The United States is facing strong headwinds


These are challenging times for the US economy. The current situation seems to be more than a typical slowdown induced by a cyclical correction at the peak of the cycle. The protracted housing downturn and the resulting dislocation in financial markets have increased uncertainty about economic prospects and are likely to considerably weigh on economic activity for quite some time.

The first of difficulties is *the downturn in the housing market*. After having remained stable for twenty years, real house prices soared after the mid-1990s, increasing on average by nearly 50%. The surge in prices stimulated building activity; for a decade, residential construction rose at an annual average rate of 5%. While the housing appreciation partly reflected a decline in long-term interest rates and a rise in economic standard of living associated to the acceleration in productivity in the late 1990s, there were also signs that it was not fully supported by fundamentals (Figure 1.1). The correction needed to restore equilibrium started in 2006, with the boom quickly turning into bust. To quote Rudiger Dornbusch (2001): “It takes longer than you think, but then it happens faster than you would have thought”. Since then, the twelve-month change in nominal house prices has turned negative nationwide (according to some measures for the first time since the Great Depression), and the share of residential construction in nominal GDP has more than halved. Furthermore, as shown in Figure 1.2, foreclosure starts have soared, reflecting the fact that an increasing number of borrowers have found it difficult to service their mortgages.

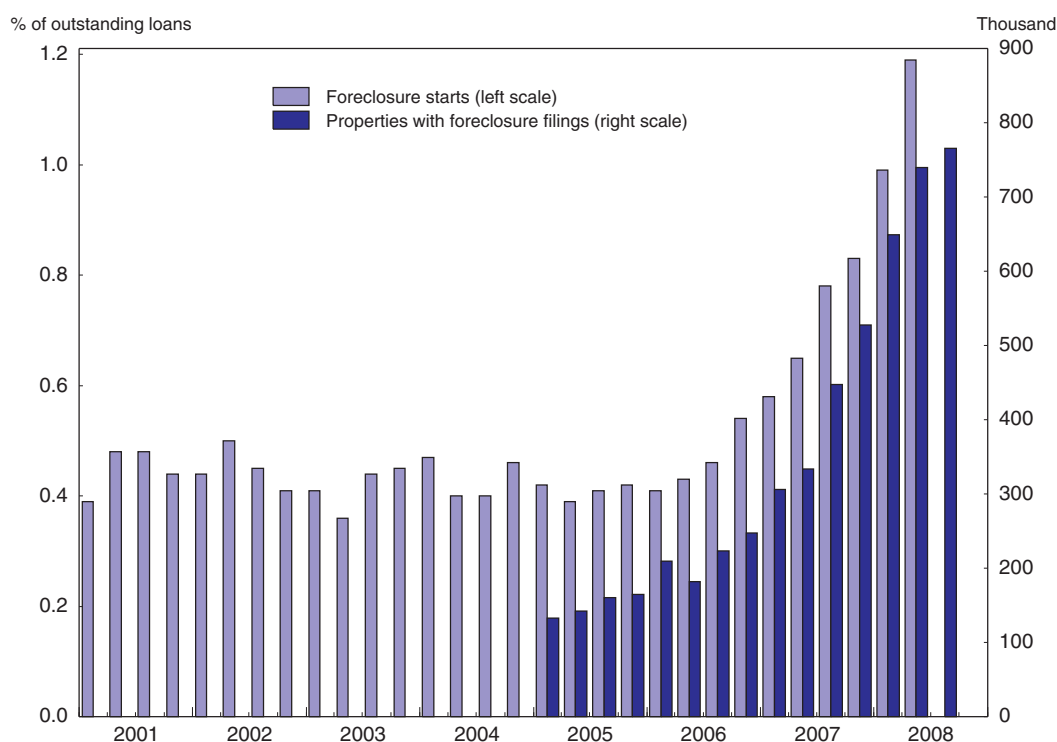
Figure 1.1. **House prices relative to income and to rent**

Base year 2000 = 1



StatLink  <http://dx.doi.org/10.1787/486674401006>

Source: OECD update of Girouard et al. (2006).

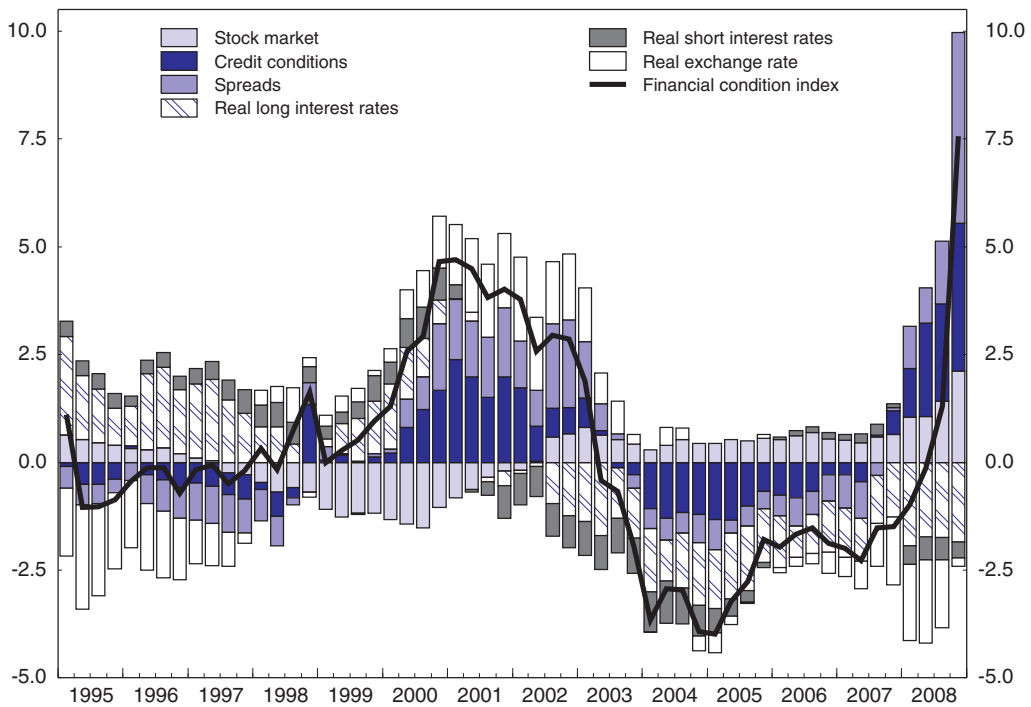
Figure 1.2. **Foreclosures have soared**


StatLink  <http://dx.doi.org/10.1787/486681268712>

Source: Thomson Datastream, Mortgage Bankers Association; RealtyTrac, Inc.

The second prominent feature of the present period is *the financial crisis*. Since August 2007, financial markets in the United States, and in many other OECD countries, have been under considerable stress. The triggering event was a sharp increase in delinquencies of subprime mortgages leading to a sudden drop in the price of the securities backed by those mortgages, but the crisis has since spread to the rest of the financial system. As discussed in Chapter 2, the sharp growth of subprime mortgage lending was part of a broader trend characterized by a greater appetite for risk and an ample availability of credit. As investors came to realise that lending standards had eroded and that mortgage- and asset-backed securities were riskier than they had supposed, demand for and trading of such products dried up, resulting in large losses on a variety of credit-based securities. This was described as “A *global margin call on virtually all leveraged positions*” by Federal Reserve Governor Warsh (2008). As risk was re-priced, financial institutions linked to leveraged products incurred large credit losses and reported substantial write-downs on their outstanding positions, dangerously weakening their balance sheet positions. Restoring their financial health has involved a combination of raising capital, retaining earnings, lengthening the maturity of funding, but also shrinking the balance sheets and thus deleveraging. This last development has been restricting the availability and increasing the cost of credit to the rest of the economy (Figure 1.3). The tightening of access to credit has thus far been most pronounced for households, since much of the nonconforming mortgage market has dried up. There are signs that credit is being squeezed beyond the housing market. (Box 1.1 examines the relation between house prices and the boom in riskier mortgage lending). Banks are reducing credit card limits, and

Figure 1.3. US financial conditions have tightened



StatLink  <http://dx.doi.org/10.1787/486705880232>

Source: OECD (2008b). For an explanation of the index, please see Guichard and Turner (2008).

Box 1.1. Did the boom in subprime lending contribute to the sharp increase in house prices?

The boom in subprime lending over 2003-05 coincided with the period when house prices appear to have risen markedly above fundamentals. It is therefore important to examine the relation between these two developments, and in particular whether the extension of credit to risky borrowers led to undue housing appreciation. However, this question has proved to be difficult to answer. Mian and Sufi (2008) examine it using a very detailed dataset, which allows them to draw inferences across neighbourhoods (ZIP codes) and over time. They find that the largest increases in house prices from 2001 to 2005 and the subsequent sharp rises in defaults from 2005 to 2007 happened in areas that experienced rapid growth in the share of mortgages sold by the lender shortly after origination. These areas were characterised by high “latent demand” in the mid-1990s that is by a high share of borrowers whose mortgage applications had been denied. [Standard explanations for why credit is quantity rationed rather than price rationed beyond a certain point are that further increases in interest rates exacerbate adverse selection (Stiglitz and Weiss, 1981) and moral hazard problems (Diamond, 1991), and therefore would not compensate lenders for the extra risks of such lending]. The rapid growth in lending in these areas occurred despite relatively unfavourable income and employment developments. This study concludes that over the period 2001-07, at least 15% of total home purchase loans and 10% of aggregate house price appreciation in the United States can be attributed to an outward shift in the supply of credit.

Box 1.1. Did the boom in subprime lending contribute to the sharp increase in house prices? (cont.)

Other studies also find evidence but are more guarded about drawing a casual relation from credit expansion to the surge in house prices. Mayer and Sinai (2008) demonstrate that metropolitan areas with higher subprime originations had greater “excess” appreciation in price-to-rent ratios. Mayer and Pence (2008) find that subprime originations appear to have been heavily concentrated in fast-growing parts of the country with considerable new construction, such as Florida and California. These locations saw house prices rise at faster-than-average rates relative to their own history and relative to the rest of the country. However, this link between construction, house prices, and subprime lending is not universal, as other markets with high house price growth, such as the Northeast, did not see especially high rates of subprime mortgage issuance.

Overall, these three studies suggest that house price appreciation was linked to the mortgage credit expansion and they caution against treating house prices as exogenous to credit conditions. However, the extent to which subprime lending helped to cause this housing boom remains an open question.

In any case, it is important to emphasise that the degree to which house prices rose and probably overshot fundamental values in the United States was not extreme by international comparison (Figure 1.4). Most countries in the OECD area have also experienced marked house price appreciation since the mid-1990s. This should not be surprising since some of the factors encouraging price appreciation in the United States applied more generally, especially the decline in long-term interest rates. However, the cross-country evidence suggests that the boom in subprime lending, which was a US-specific development (perhaps with a few exceptions such as the United Kingdom), was not the main factor behind the surge in house prices in the United States.

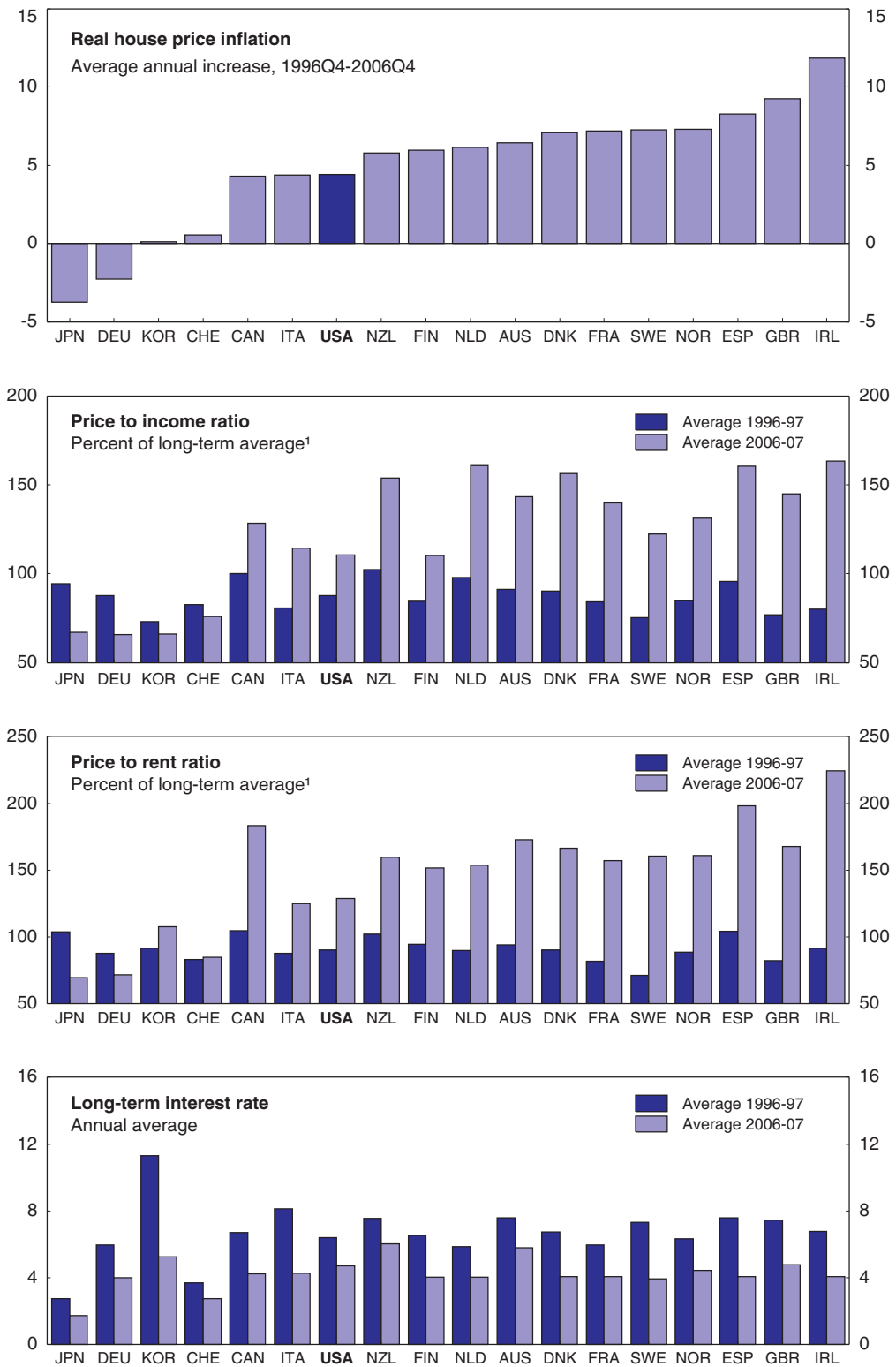
denial rates on automobile loan applications are reportedly rising. Even households with good credit histories face difficulties obtaining mortgages or home equity lines of credit. Businesses, too, are becoming impaired by diminished access to credit. For instance, tighter bank standards for commercial and industrial loans – as evidenced by the October and earlier Senior Loan Officer Opinion Surveys – and disruptions in the commercial paper market have made it difficult for firms to obtain the working capital they need to meet routine expenses such as payrolls and inventories.

The housing downturn and the financial crisis may affect developments in the US economy well into 2010 and beyond. This is because, as discussed in Box 1.2, the resulting declines in house and equity prices may have sizeable long-lasting effects on household spending. In other words, the US economy is confronting headwinds that may not only cause a severe recession in the near term but also restrain the subsequent recovery. One positive note, in contrast, has come from the recent developments in commodity prices. Energy prices, which had surged over the first half of 2008, have come down substantially in the third quarter. This should reduce pressures on inflation, which had spiked in mid-2008, and thus attenuate the decline in real incomes (Figure 1.5).

Macroeconomic policy has supported economic growth

The US authorities have responded to these developments with a combination of aggressive monetary and fiscal policy actions (Figure 1.6). The Federal Reserve has eased the monetary stance substantially and proactively in response to the deteriorating

Figure 1.4. **House price developments in selected OECD countries**¹



StatLink <http://dx.doi.org/10.1787/486734055502>

1. The long-term average is for the period 1970Q2 to 2006Q4.

Source: OECD update of Girouard et al. (2006).

Box 1.2. The simulated effects of a decline in household wealth

Over the past year, the US economy has been hit by a series of shocks, including a sizeable decline in household wealth. Table 1.1 presents the simulated effects of a 20% decline in stock prices according to the FRB/US model, a large-scale econometric model of the US economy maintained at the Federal Reserve Board for use in policy analysis and forecasting. The columns to the left report the effects assuming that real federal funds rate is kept unchanged, while those to the right are conditional to monetary policy following a Taylor rule. FRB/US is a new-Keynesian model in which households and firms are forward-looking, but face significant frictions that slow the speed at which they adjust prices and quantities to changes in fundamental economic factors. For this reason, markets do not clear quickly after disturbances to the economy, resulting in periods of over- or under-utilisation of labour and capital resources. Reifschneider *et al.* (1999) present an overview of the FRB/US model, examining its main features and the ways in which they shape the model's predictions.

Table 1.1. Simulated macroeconomic effects in the FRB/US model

Macroeconomic measure	Constant real funds rate			Taylor rule		
	Response at end of year					
	1	2	3	1	2	3
Household wealth: reduction in stock market of 20%						
Real GDP	-0.4	-0.8	-1.0	-0.2	-0.3	-0.3
Unemployment rate	0.1	0.3	0.4	0.1	0.1	0.1
Headline inflation ¹	0.0	-0.2	-0.4	0.0	0.0	0.0
Nominal federal funds rate	0.0	-0.2	-0.4	-0.3	-0.4	-0.4

1. Four-quarter per cent change of the price index for personal consumption expenditures.

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

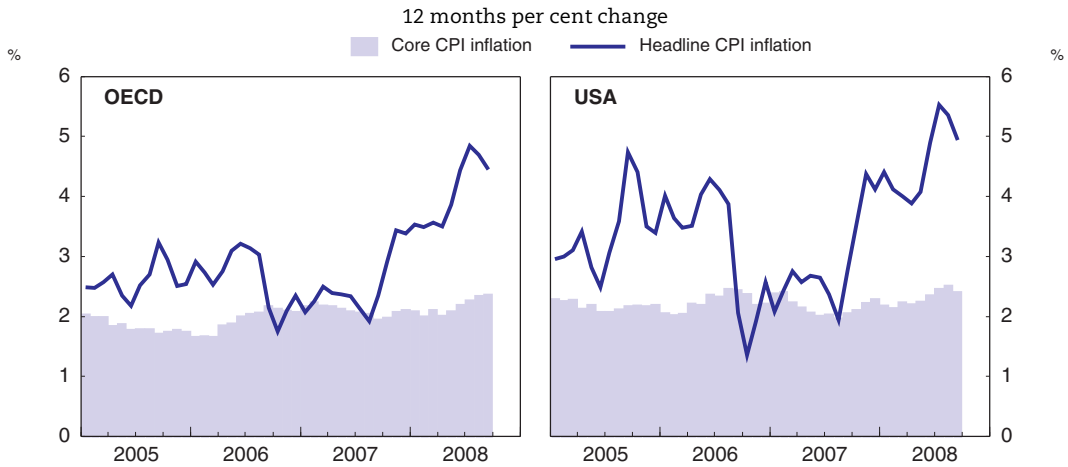
While the FRB/US model is not exactly linear and important structural changes have occurred in the US economy over the past decade, the multipliers reported in Table 1.1 can help assess the effects of the recent decline in household wealth. Household wealth is estimated to have declined nearly 20% over the year to September 2008, reflecting a 27% drop in the stock market (as measured by the S&P 500 index) and a 6% decline in house prices (as measured by the FHFA index, formerly called the OFHEO house price index). The effect of a fall in household wealth depends, in large part, on the long-run marginal propensity to consume out of wealth, which is estimated by the Federal Reserve to be about 0.0375 (i.e., 3¾ cents per dollar), for both housing wealth and stock market wealth (Mishkin, 2007). This view is consistent with standard models of the life-cycle hypothesis of saving and consumption in which all sources of an increase in wealth, whether from stocks, real estate, or other assets, have the same positive effect on consumer spending.

Based on the multipliers such as those in Table 1.1, and allowing for stock market wealth comprising about half total household wealth, the OECD estimates that a 20% decline in household wealth reduces GDP by less than 1% after four quarters but that GDP may continue to further diverge from baseline for some time, opening up a 2% gap after twelve quarters. The model seems to well capture the presumption that wealth effects have long lags and that they can be quite large. In contrast, the drop in wealth has a relatively

Box 1.2. The simulated effects of a decline in household wealth (cont.)

small, but not negligible, effect on prices. These simulations also suggest that the conduct of monetary policy can help offset the effects of such a decline in wealth. Indeed, the multipliers on the right-hand side of Table 1.1 indicate that a more accommodative monetary stance, as mandated by a contemporaneous Taylor rule, can noticeably help GDP return to baseline faster. Furthermore, as argued in Mishkin (2007), a more proactive monetary policy may deliver even greater economic stability.

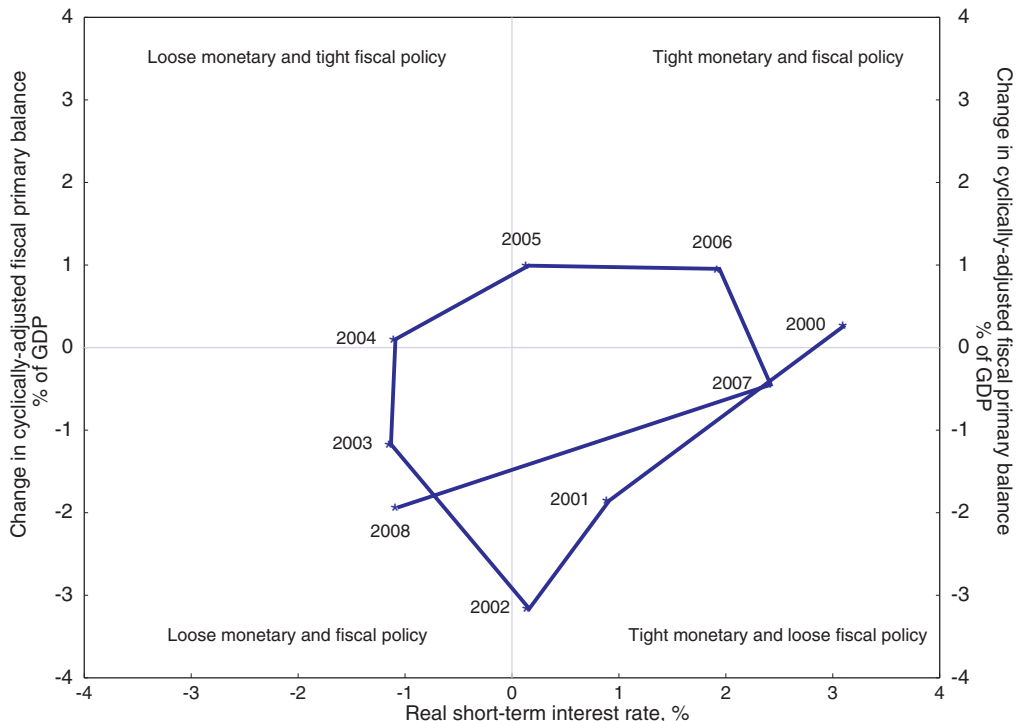
Figure 1.5. Headline and core inflation



StatLink <http://dx.doi.org/10.1787/486773401001>

Source: OECD, Main Economic Indicators and Analytical Database.

Figure 1.6. Monetary and fiscal stance



StatLink <http://dx.doi.org/10.1787/486847418476>

Source: OECD (2008b).

economic outlook and tighter financial conditions, lowering the federal funds rate aggressively from 5¼% in September 2007 to 1% in October 2008. In addition, as discussed in Chapter 2, the Federal Reserve has implemented a series of innovative steps to support liquidity in the short-term funding market, to re-liquify the market for mortgage-backed securities, commercial paper and money funds and to assist with the rescues of Bear Stearns and AIG. Since the onset of the financial crisis, it has more than doubled its balance sheet to more than USD 2 trillion and has lent over half of its Treasury securities in exchange for lesser grade securities, mostly backed by mortgages.

The fiscal stance has also become very accommodative. In 2008, about USD 115 billion in tax rebates were sent to households, while firms were offered a bonus depreciation scheme worth USD 50 billion to foster investment. In addition, unemployment benefits have been temporarily extended and, as discussed in Chapter 2, various measures have been taken to support distressed borrowers in order to facilitate an orderly adjustment in the housing market. As the financial crisis intensified over the second half of 2008, Treasury had to extend financial support Fannie Mae and Freddie Mac, which were put into conservatorship (effectively taken over by their regulator) as serious concerns emerged about their solvency. Furthermore, Congress enacted a USD 700 billion rescue plan which has partly been used to recapitalise banks and to guarantee troubled assets in order to avoid a full-blown credit crunch. In all, the OECD estimates that the general government primary cyclically-adjusted budget deficit has increased by about 2 percentage points to 3% in 2008 (see Figure 1.6).

Slower growth

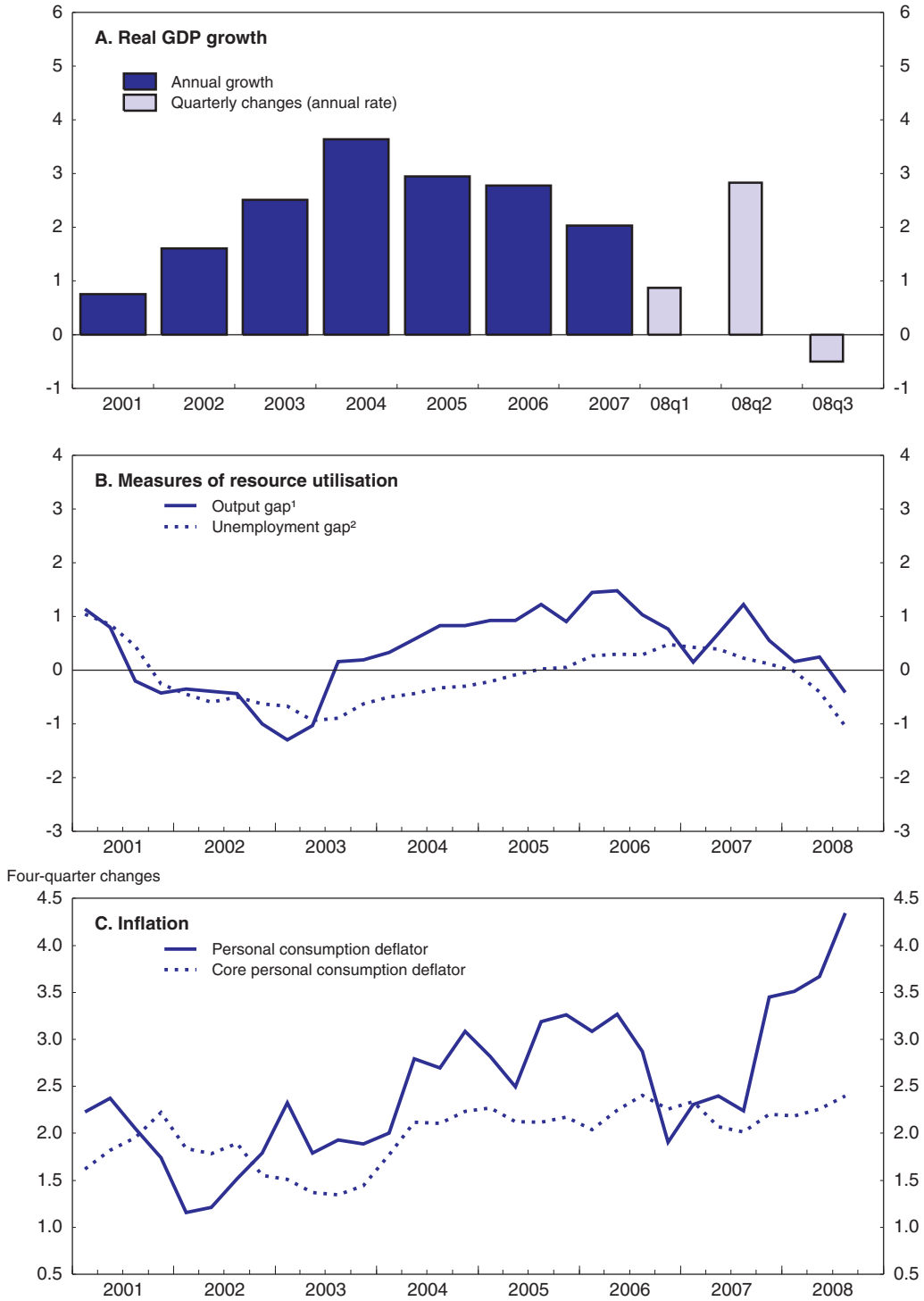
Despite this aggressive policy response, economic growth has slowed considerably since mid-2007. Real GDP was about flat in the last quarter of 2007 and the first quarter of 2008, moved up strongly in the second quarter of 2008, and declined in the third quarter of 2008 (top panel of Figure 1.7). Furthermore, there are increasing signs that the economy has probably fallen into a severe recession.

Developments in the housing, stock and labour markets have been weakening household balance sheets and incomes. Residential construction has fallen dramatically, but the inventory of unsold houses remains excessive relative to demand. Falling house prices have been contributing to a rise in home foreclosures by reducing the scope for refinancing existing mortgages, exerting in turn additional downward pressure on prices. In combination with falling equity prices, household wealth – a key influence on private consumption – has been falling for the first time since 2002. The growth rate of real labour income has also stepped down substantially since the summer of 2007 as labour market conditions have deteriorated. In addition, measures of consumer confidence have plunged and tighter lending standards at banks have restricted the availability of consumer credit. These factors have all contributed to reduce private consumption growth, which has turned negative in the third quarter of 2008. The tax rebates appear to have supported consumer spending only temporarily, in line with the analysis of previous episodes indicating that their effects are large but also short-lived (Agarwal *et al.*, 2008).

The business sector has also been losing steam since the beginning of 2008. Deteriorating economic and financial conditions and heightened concerns about the outlook have contributed to slow both private fixed investment and non-residential construction activity. Although credit has generally remained available to firms, more recently the credit squeeze seems to have been spreading to the business sector. Banks have reported that they substantially tightened their standards for commercial and

Figure 1.7. **Aggregate economic indicators**

Per cent



StatLink <http://dx.doi.org/10.1787/486854834445>

1. Per cent difference between actual and estimated potential output.
2. Difference between the NAIRU rate and the actual unemployment rate.

Source: Bureau of Economic Analysis, Bureau of Labor Statistics, OECD Analytical Database and OECD estimates.

industrial loans, which have slowed appreciably over the course of 2008. Later in the year, the market for commercial paper, an important source of funding for financial and non-financial firms. Interest rates paid by issuers on commercial paper with maturity of 1-month and beyond have widened significantly, exposing issuers to the costs and risks of having to roll over increasingly large amounts of paper on a nearly daily basis.

In contrast to developments in the household and business sectors, the external sector was a bright spot for the US economy during 2008. Real exports benefitted from the weakening of the dollar, while real imports were held back by the decline in domestic demand. However, the momentum seems to have turned also for the net exports. In particular, prospects for export growth have worsened since global economic activity – especially in the OECD economies – has slowed sharply and the dollar has returned to its 2007 level.

Earlier concerns about inflation exceeding comfort levels have dissipated in recent months. Indeed, until the third quarter of 2008, whereas the pace of economic activity has slowed and measures of resource utilisation have edged down, consumer prices had accelerated, pushed by rising food and especially commodity prices (middle and bottom panels of Figure 1.7). However, oil and metal prices have dropped substantially late in 2008, quickly lowering inflationary pressures. In any case, it should be noted that long-run inflation expectations have always remained quite stable despite the large swings in commodity prices.

Longer-term macroeconomic imbalances persist

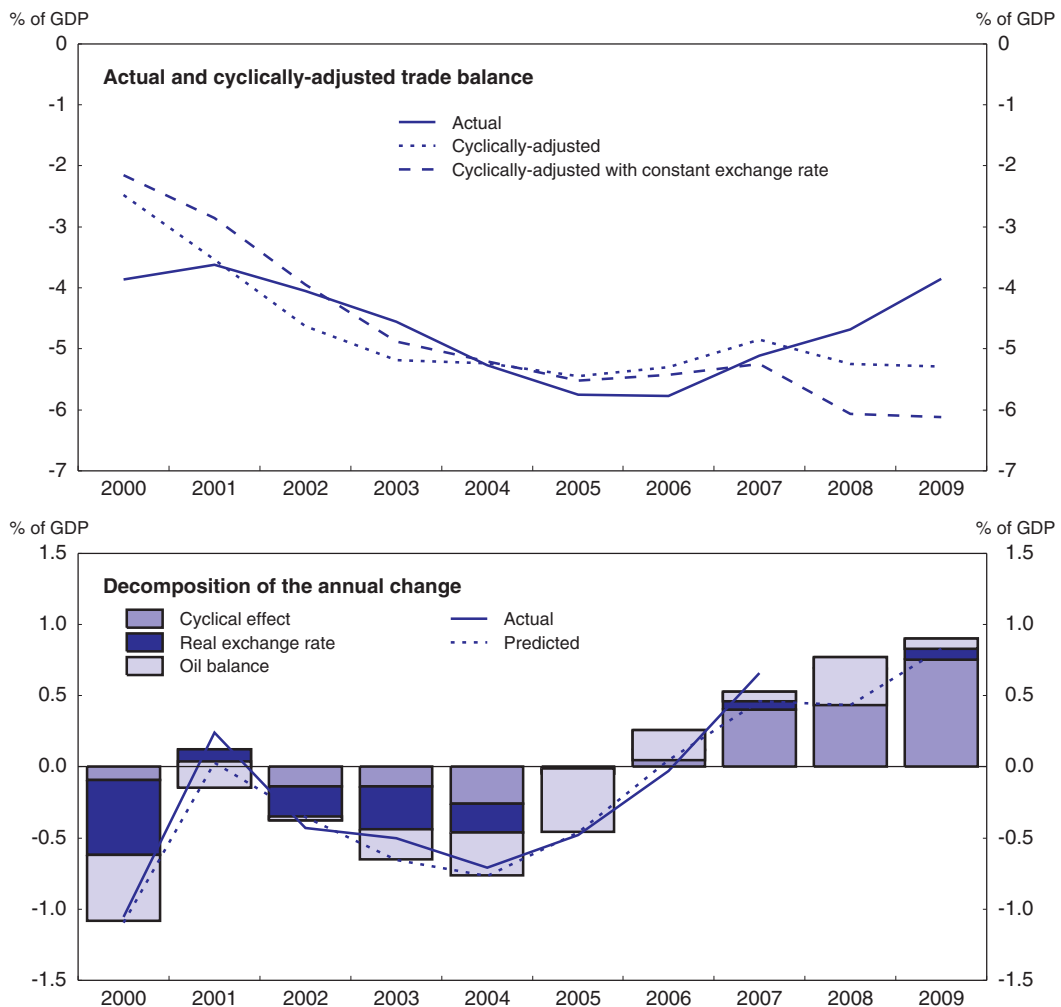
The difficult situation of the US economy reflects not only transitory problems but also longer-term macroeconomic imbalances. During the post-2001 recovery, the household saving ratio fell to near zero and household indebtedness became very high. As discussed in the last US Survey (OECD, 2007), although an increase in household borrowing is not unusual during a period of economic expansion and similar run-ups occurred in other OECD countries, the increase was particularly pronounced in the United States. In part, these trends resulted from market forces. The decline in saving was associated with rising equity and house values, so household net worth continued to rise despite increasing debts. However, government policies may have also played a role in the accumulation of household debt. Above all, the favourable tax treatment of housing investment may have encouraged the accumulation of home-secured debt. Still, this preference has been in place for decades and therefore other forces must have contributed to the decline in savings over the last decade. In any case, after the substantial declines in housing and equity prices, it now appears that many households will either want or be forced to reduce their indebtedness over time. Households can be thereby expected to save more of their disposable income to repair their balance sheets and set aside enough funds to finance future retirement income.

The government's structural budget deficit has increased considerably since the early 2000s. Government expenditures have increased, notably on defence spending, without any corresponding increase in taxation. The OECD estimates that the general government structural balance, which include state and local finances, has deteriorated from a surplus of 0.9% of GDP in 2000 to a deficit of 5.2% of GDP in 2008 (although there are significant uncertainties around these estimates), of which about 1.2 percentage point relates to the 2008 stimulus package. Furthermore, the unwinding of the financial crisis constitutes a major risk to public finances. Apart from the 2008 stimulus package, Congress authorised spending USD 700 billion for a financial rescue package. Furthermore, the

Federal Reserve assumed considerable risks during the Bear Stearns and AIG operation as did the Department of Treasury in the process of extending financial support to Fannie Mae and Freddie Mac.

The United States has been running a large current account deficit for some time. Even though the situation has improved over the past couple of years, it appears that the recent improvement in the trade balance is largely attributable to temporary developments such as the depreciation of the dollar and the relative cyclical position of the US economy (Figure 1.8). Furthermore, the narrowing of the current account deficit has also reflected a marked increase in net investment income as a result, not least, of valuation changes related to the depreciation of the dollar. However, the investment income surplus may not persist. First, the US net investment position should continue to deteriorate as the current account remains in deficit. Second, while in the past US investors have earned more on their investments abroad than foreign investors in the United States, recent empirical evidence suggests that one reason for this was that foreign residents have poorly timed

Figure 1.8. **Current account imbalance**



StatLink <http://dx.doi.org/10.1787/486864448282>

Source: OECD (2008a).

their investments: foreign investors have tended to shift their US portfolios toward (or away from) equities prior to the subsequent underperformance (or strong performance) of equities (Curcuro *et al.*, 2007). Admittedly, it is far from certain that these return differentials will endure in the future. All in all, these considerations suggest that, despite recent improvements, the issue of the large US external imbalances is far from solved.

Economic activity is projected to contract in the near term and to remain weak until mid-2010

The US economy is likely to have already entered a recession and the near-term prospect is for further weakness (Table 1.2). Stagnating real disposable incomes, together with tight credit conditions and reduced confidence, will likely weigh considerably on household spending. Furthermore, house prices are likely to fall further, reducing household wealth and thus driving US families to spend less than otherwise. Residential construction is also set to decline further, even if its drag on overall economic activity should diminish over time. Weak sales prospects will also further curtail business

Table 1.2. **Near-term projections**
Percentage change, volume terms (chained 2 000 dollars)

	2007	2008	2009	2010
Economic activity				
Real GDP	2.0	1.4	-0.9	1.6
Private consumption	2.8	0.4	-1.2	1.2
Government consumption	1.9	2.8	2.3	1.4
Gross fixed investment	-2.0	-3.1	-7.3	1.4
Private residential	-17.9	-21.3	-16.8	0.7
Private non-residential	4.9	2.4	-7.6	1.7
Government	3.0	3.6	2.6	1.2
Final domestic demand	1.8	0.2	-1.6	1.3
Stockbuilding ¹	-0.4	-0.3	0.0	0.0
Total domestic demand	1.4	-0.1	-1.6	1.3
Exports of goods and services	8.4	8.5	2.8	3.8
Imports of goods and services	2.2	-2.3	-2.1	1.6
Foreign balance¹	0.6	1.4	0.8	0.2
Prices				
GDP price deflator	2.7	2.2	1.8	1.5
Private consumption deflator	2.6	3.6	1.2	1.3
Output gap	0.7	-0.4	-3.6	-4.2
Potential output	2.6	2.5	2.3	2.3
Unemployment rate	4.6	5.7	7.3	7.5
Federal funds rate	5.0	2.1	0.7	1.5
Ten-year Treasury note rate	4.6	3.8	4.1	4.8
Net lending of general government²				
USD billion	-400	-757	-974	-1 016
Per cent of GDP	-2.9	-5.3	-6.7	-6.8
Current account balance				
USD billion	-731	-696	-562	-537
Per cent of GDP	-5.3	-4.9	-3.9	-3.6
Household saving rate ²	0.6	1.6	2.8	2.5

1. Contributions to GDP.

2. OECD definitions.

Source: Bureau of Economic Analysis, Bureau of Labor, Department of Commerce, and OECD (2008b).

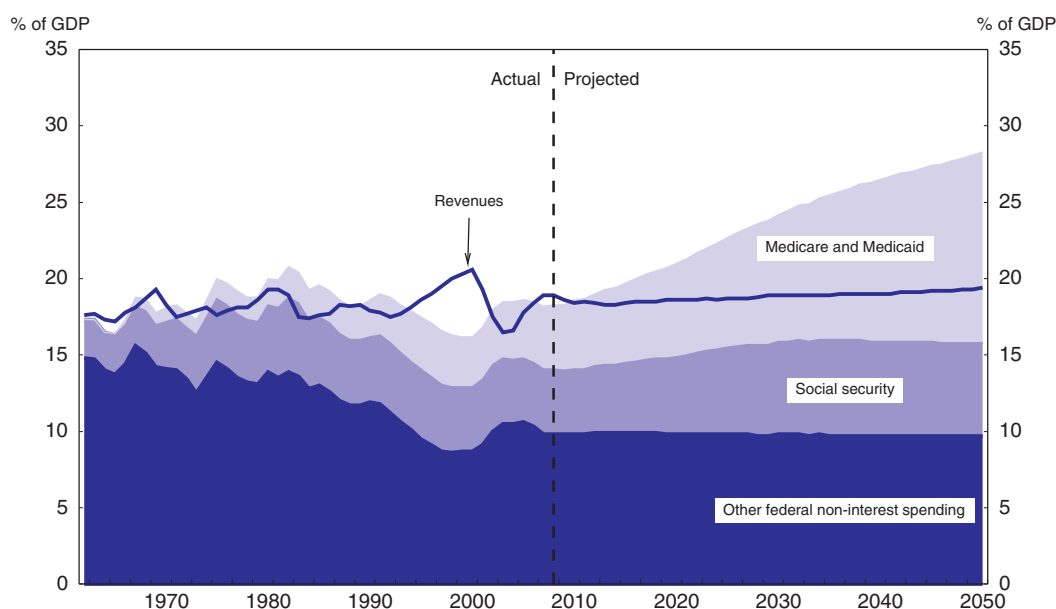
investment well into 2009 via the traditional accelerator effect, reinforced by the credit squeeze. Moreover, the projected slowing in foreign markets will feed back to US exports, further depressing growth. As financial conditions normalise and the housing downturn bottoms out, the economy is projected to begin to grow again in the second half of 2009, albeit at a moderate pace since consumer spending is likely to be restrained by reduced confidence and loss of wealth. In 2010, economic activity, still supported by substantial monetary policy stimulus, is expected to gradually accelerate above its potential pace. The outlook for inflation is more subdued. Inflation should fall considerably from the elevated levels posted until the third quarter of 2008, in response to the drop in commodity prices and the opening of a substantial output gap.

These projections are subject to greater uncertainty than usual. Even though a stronger-than-projected recovery is possible, risks for growth are skewed to the downside. If financial conditions fail to move back to the pre-September level in the near term, the implications for the broader economy would be quite adverse. A protracted credit crunch would hold back spending, production and job creation even further. While the effects of the ongoing financial crisis on real activity are highly uncertain, recent OECD work suggests that the tighter financial conditions – as captured in the index reported in Figure 1.3 – may subtract 1 percentage point from GDP growth over the next two years (OECD, 2008a). Furthermore, financial institutions, notably commercial banks, lend significantly more than their capital bases, and therefore the losses they suffer tend to have a multiplicative impact on the availability of loans. In mid-2008, before the crisis intensified, it has been estimated that the expected retrenchment in credit is likely to reduce GDP growth by more than 1 percentage point per year over a three-year period (Deutsche Bank, 2008). While these estimates suggest that the feedback to the economy from the deleveraging could be substantial, they are based on rough calculations and the situation is continuously evolving. In particular, there is considerable uncertainty about the eventual scale of financial institutions' losses and the extent to which they restore their capital ratios by raising new equity capital as opposed to shrinking their balance sheets. These risks could go either way, speeding the recovery or delaying it.

Public finances are not on a sustainable path

Even abstracting from any budget costs of resolving the financial crisis, which could be substantial, the federal government budget on current policies is far from being on a sustainable path, defined as one on which federal debt is stable as a share of GDP in the long run. Federal expenditure is set to increase substantially over coming decades, resulting in growing budget deficits and snowballing federal debt levels. Most of the projected increase in federal primary (*i.e.*, noninterest) expenditure as a share of GDP is accounted for by growing expenditure on the public health insurance programmes, Medicare and Medicaid (Figure 1.9). The Congressional Budget Office (CBO, 2007) projects an increase in such expenditure as a share of GDP from 4% in 2007 to 12½ per cent in 2050 in its Alternative Fiscal Scenario (AFS), which is based on assumptions about expenditures and revenues that reflect the CBO's assessment of the intent of current policies as opposed to a strict legal interpretation of them, as used in the Extended Baseline Scenario (EBS).¹ Most of this increase reflects higher expenditure per beneficiary, which is mainly attributable to the emergence, adoption, and widespread diffusion of new medical technologies and services, although increasing numbers of beneficiaries owing to population ageing also has a role, notably over the next 20 to 30 years.² The excess of cost

Figure 1.9. **The CBO's long-term primary expenditure and revenue projections¹ for the federal government**



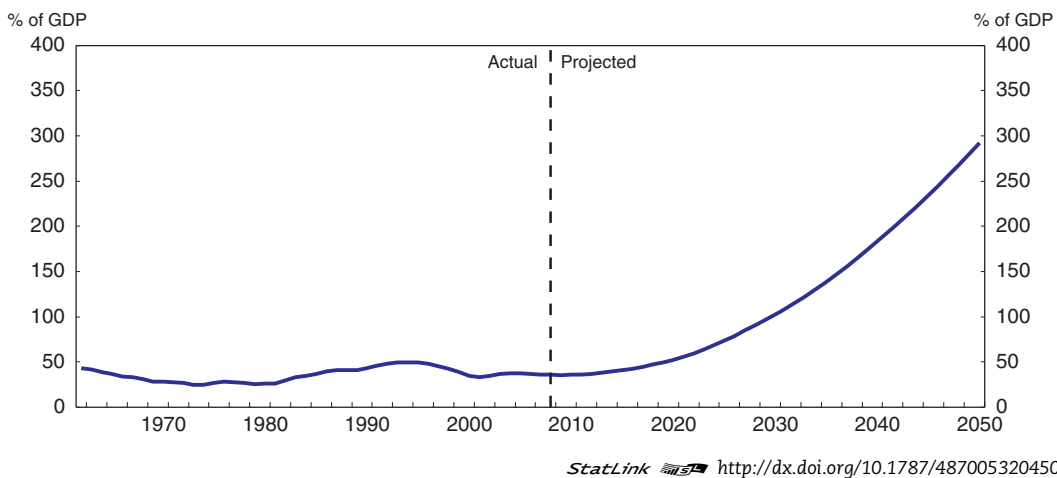
StatLink  <http://dx.doi.org/10.1787/486882178541>

1. The projections are based on the CBO's alternative fiscal scenario. This scenario reflects the CBO's assessment of the intent of current policies as opposed to a strict legal interpretation of them. In this scenario, the personal income tax cuts scheduled to expire in 2010 do not do so and the Alternative Minimum Tax is indexed for inflation after 2007, contrary to the scenario (Extended Baseline) based on current laws.

Source: Congressional Budget Office.

growth per beneficiary over growth in GDP per capita, known as excess cost growth, is assumed to be around historical average rates (2.4% per year for Medicare, 2.2% for Medicaid, and 2.0% for other health-care spending since 1975) until 2018, but then to decline gradually so that real per capita consumption of goods and services other than health care does not decline during the full projection period (up to 2082). Social security spending,³ on other hand, increases entirely on account of population ageing, from 4% of GDP in 2007 to 6% in 2030, where it remains in subsequent decades. Other spending excluding interest payments is assumed to remain at the 2007 share of GDP. Federal revenue is projected only to rise slightly as a percentage of GDP in the AFS, with the increase being attributable to real bracket creep. These primary expenditure and revenue projections imply an upward spiral of increasing federal budget deficits, federal debt, and debt interest payments, taking the federal budget deficit from 1.2% of GDP in 2007 to 8.9% of GDP in 2050 and the debt of the federal government and its agencies (net of intra-government holdings) from 36% of GDP to 292% of GDP over the same period (Figure 1.10).⁴

Substantially increasing federal debt levels could crowd out private investment, which would likely lead to lower capital intensity of production than otherwise. The CBO (2007) estimates that the increase in federal debt in its projection would reduce the capital stock – compared with what it would have been had deficits remained at the 2007 level as a share of the economy – by 40% in 2050 and would lower GNP by 25%. Moreover, such large increases in debt could undermine investor confidence in US government economic policies, leading to still larger reductions in investment. For these reasons, it is important that steps be taken to put the federal budget on a sustainable path.

Figure 1.10. **The CBO's long-term projections for federal debt held by the public**¹

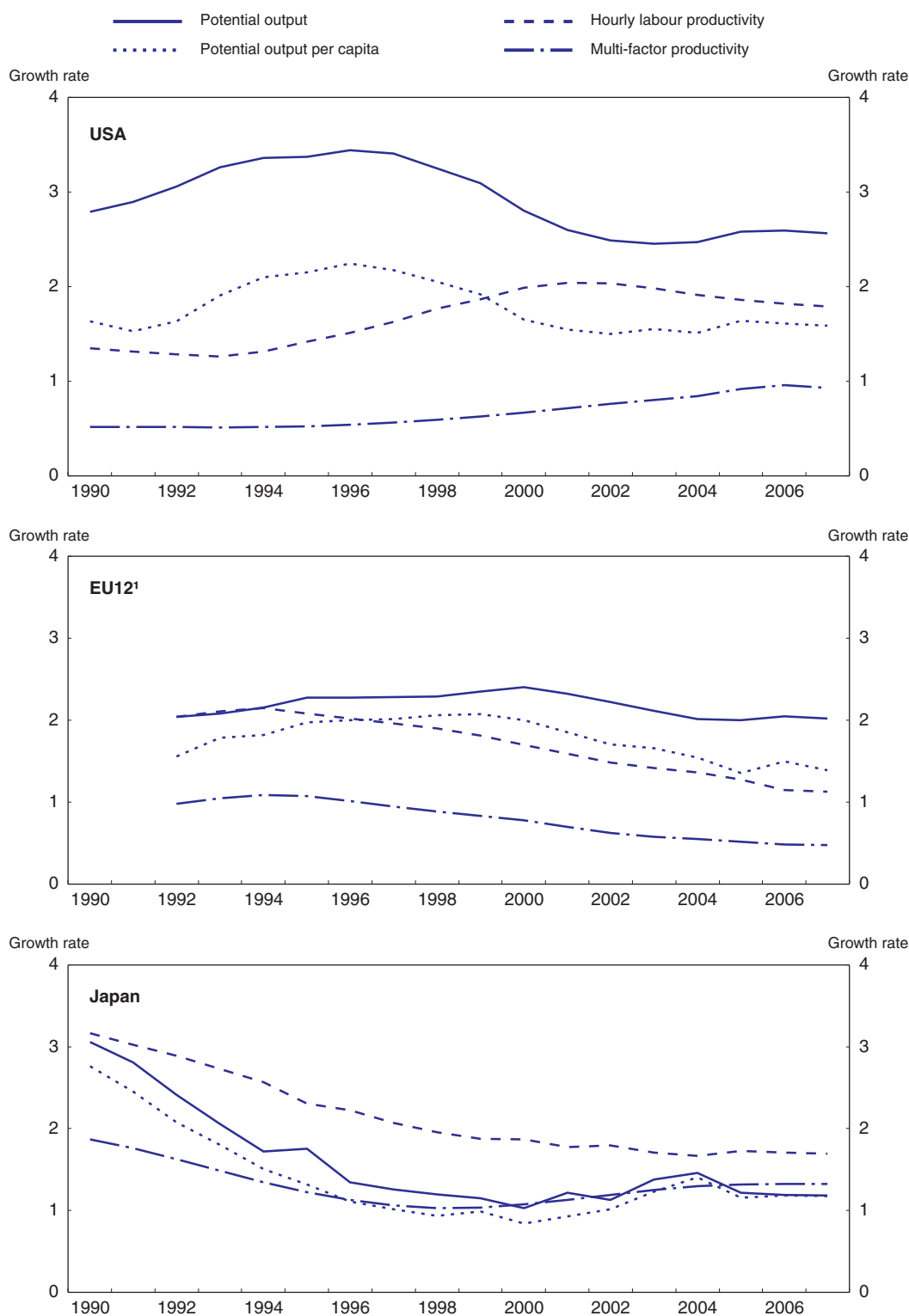
1. See footnote 1 in Figure 1.9.


Source: Congressional Budget Office.

The CBO estimates that the fiscal gap, which measures the immediate change in spending or revenue needed to generate a stable fiscal trajectory over a given period, is 5.2% of GDP for the next 50 years.⁵ In other words, primary spending would need to be reduced or taxes increased by this amount in 2008 to hold federal government debt by the end of the projection period (2057) to the same share of the economy as in 2007. The gap is now so large that both reductions in expenditures and increases in taxes are likely to be required to put the federal budget back on a sustainable path. Delaying adjustment would result in a much larger fiscal gap to be closed as delay increases outstanding government debt and hence, government interest payments.⁶ It is also important that planned changes in entitlement programmes or in the tax structure be announced as soon as possible so that people can smooth the effects on their living standards by adjusting their saving and retirement plans accordingly.

Underlying prospects for economic growth remain favourable

The current economic difficulties occur against a backdrop of slowing potential economic growth following an exceptional period in the late 1990s to a still robust rate by international comparison. Growth in potential GDP is estimated to have slowed from an annual average rate of approximately 3¼ per cent in the 1990s to about 2½ per cent during the current decade (Figure 1.11). This slowdown is attributable to a decline in the growth of total hours worked, the effects of which outweighed the acceleration in trend hourly labour productivity growth to an annual average rate of around 2% during the current decade. Despite the slowdown, the potential growth rate in the United States is estimated to be higher than in either the EU12 (EU15 less Austria, Luxembourg, and Portugal, for which data on working hours are unavailable) (around 2¼ per cent during the current decade) or Japan (approximately 1¼ per cent this decade). These differences are attributable to higher hourly labour productivity growth than in the EU12 or Japan, which is an impressive achievement given that the United States is the global productivity leader (see below), and to higher growth in labour inputs than in Japan. Trend multifactor productivity (MFP) growth is estimated to have increased through the 1990s to an annual average rate of around ¾ per cent during the current decade, a rate that is a little higher than in the EU12 but lower than

Figure 1.11. **Evolution of growth in potential GDP and productivity**

StatLink  <http://dx.doi.org/10.1787/487016337004>

1. EU15 less Austria, Luxembourg and Portugal, for which data are unavailable. The EU12 averages are GDP weighted.
Source: OECD, Analytical Database.

in Japan. The OECD expects potential growth in the United States to slow further, to 2¼ per cent over the first half of the next decade, mostly owing to a decline in trend MFP growth. This is a slightly smaller decline in potential growth than is expected in Europe or Japan.

These developments in potential growth correspond to a reduction in the annual average growth rate of potential GDP per capita in the United States from around 2 per cent in the late 1990s to approximately 1½ per cent during the current decade. The decline in trend hours worked per capita underlying this slowdown mainly reflects a falling potential employment rate (Figure 1.12); working time has also declined, but by less; and the share of the working age population in the total population has been rising during the current decade whereas it was falling during the 1990s. The US growth rates in potential GDP per capita have been very similar to those recorded in the EU12 (population growth is higher in the United States than in the EU12) but have been higher than in Japan, although the gap has narrowed during the current decade.

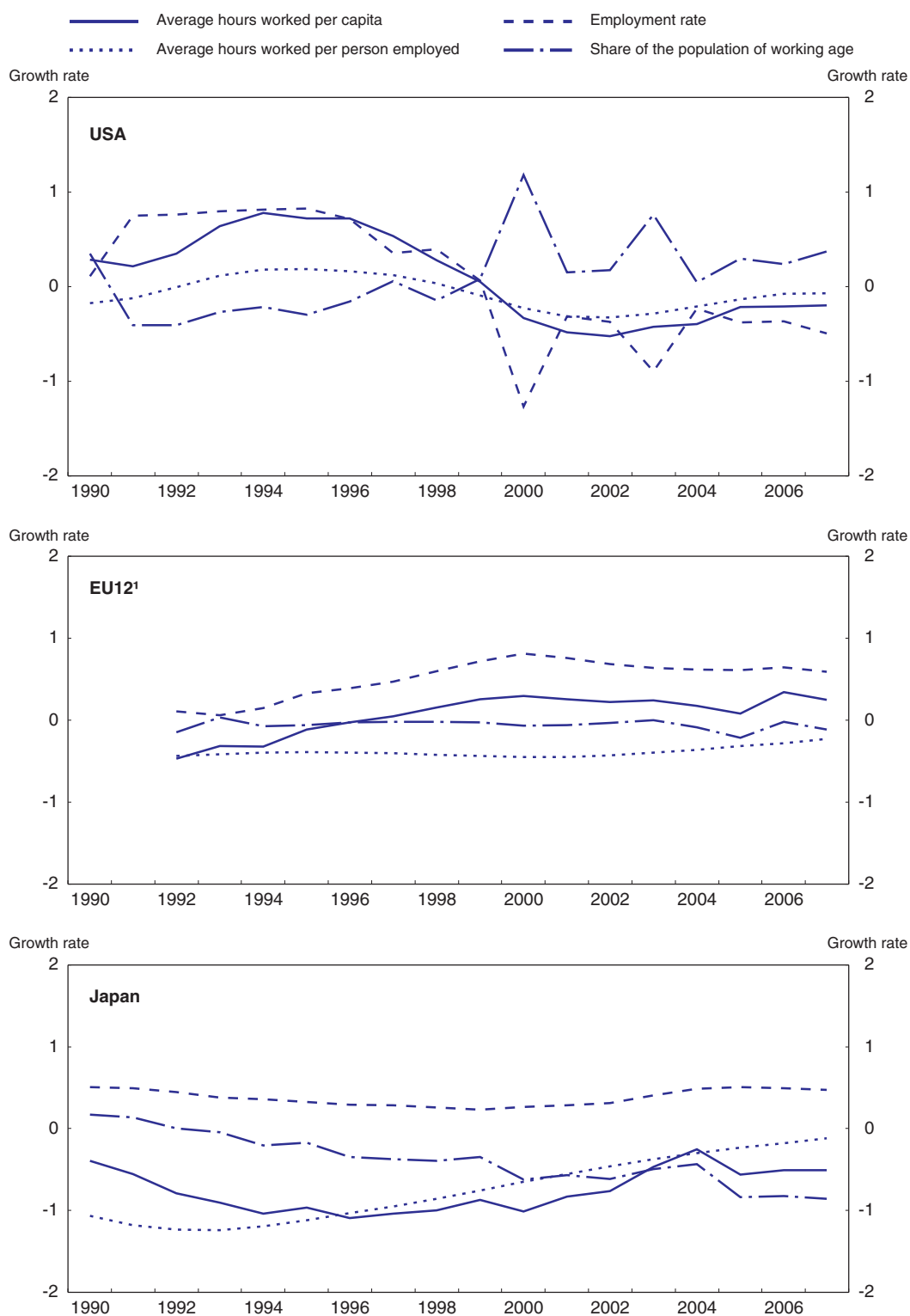
The switch from a rising to a falling potential employment rate that occurred in the United States between the 1990s and the current decade appears to be attributable to the ageing of the baby boom generation – it is moving into older age groups, which have lower labour-force participation rates than do younger age groups – and to a long-term decline in prime-age male participation rates that is no longer being offset by rising female rates (OECD, 2007). While Europe and Japan are also experiencing the effects of the ageing of the baby-boom generation, these effects are outweighed by rising female employment rates.


While US growth in potential GDP per capita may not be outstanding by international comparison, US per capita income levels are (Figure 1.13). Potential GDP per capita (at PPP USD 2000 exchange rates) in 2006 was approximately 38% higher than in both the EU12 and Japan. In comparison with the EU12, the superior US income level is attributable to both higher potential labour productivity levels and to greater potential labour utilisation, whereas the lead over Japan entirely reflects higher potential labour productivity levels. Both trend average working time and potential employment rates remain higher in the United States than in the EU12. In comparison with Japan, trend working time is lower in the United States while the potential employment rate is the same.

But there is much income inequality and it is rising

While growth in GDP per capita has been satisfactory over recent decades, the fruits of that growth have gone disproportionately to high-income earners. Income growth for households below the 90th percentile (i.e., below the top 10%) lagged behind average household income growth over the two decades since around 1980 (US Census Bureau, Current Population Survey). Concomitantly, the top 10% of household incomes grew very quickly, their share of total income having increased by approximately 10 percentage points to around 43% (Piketty and Saez, 2006). This growth too has been highly skewed towards the highest-income earning households, with the top 1% accounting for most of income gains of the top 10%. A similar pattern holds within the top 1% of household incomes. The increases and the shares of income attained by high income households in the United States are very large by international comparison.

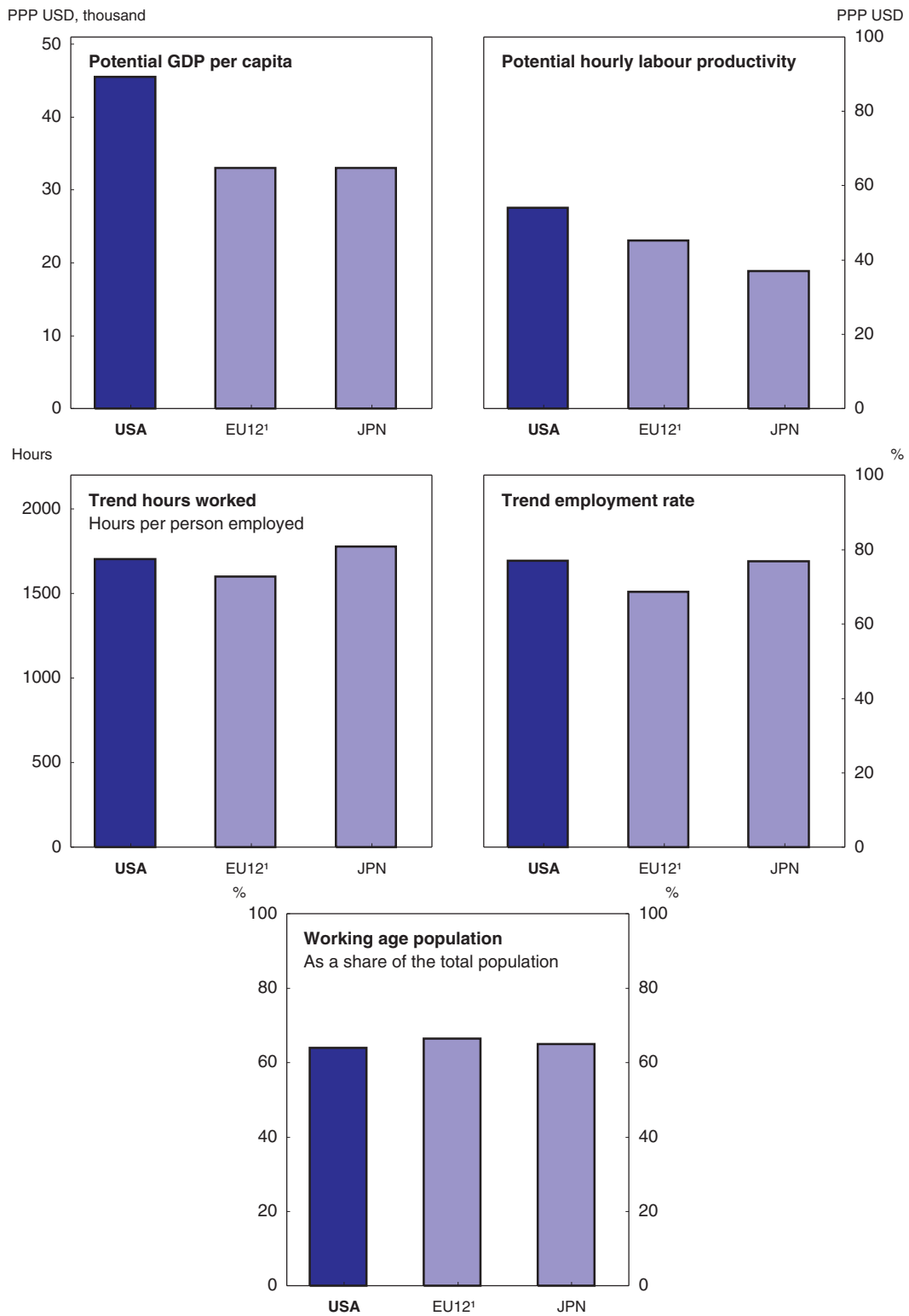
Equivalence-adjusted⁷ household disposable income at the 90th percentile grew by 0.5 percentage point per year more than at the 50th (i.e., median) percentile over the two decades since around 1980 (Table 1.3). This gap accounts for most of the divergence in growth between household disposable incomes at the 90th and 10th percentiles. These

Figure 1.12. **Decomposition of growth in labour inputs**

StatLink  <http://dx.doi.org/10.1787/487033381300>

1. EU15 less Austria, Luxembourg and Portugal, for which data are unavailable. The EU12 averages are GDP weighted.
Source: OECD, Analytical Database.

Figure 1.13. **Decomposing potential GDP per capita, 2007**



StatLink  <http://dx.doi.org/10.1787/487052477242>

1. EU15 less Austria, Luxembourg and Portugal, for which data are unavailable. The EU12 averages are GDP weighted.
Source: OECD, Analytical Database.

Table 1.3. **Developments in income distribution**

	2000 1980-2000		2000 1980-2000		2000 1980-2000		2000 1980-2000		Gini coefficient of income concentration		Atkinson coefficient epsilon = 0.5		Atkinson coefficient epsilon = 1.0	
	90/10 percentiles		90/50 percentiles		50/10 percentiles		80/20 percentiles		2000	1980	2000	1980	2000	1980
	Ratio	% change	Ratio	% change	Ratio	% change	Ratio	% change						
Australia	4.2	0.4	2.0	0.3	2.1	0.1	2.7	0.5	0.32	0.28	0.09	0.07	0.18	0.14
Austria	3.2	0.7 ¹	1.7	0.4 ¹	1.8	0.2 ¹	2.1	0.4 ¹	0.26	0.23 ²	0.06	0.04 ²	0.12	0.09 ²
Belgium	3.3	1.2 ¹	1.7	0.4 ¹	1.9	0.7 ¹	2.2	0.8 ¹	0.28	0.23 ²	0.07	0.04 ²	0.13	0.09 ²
Canada	4.2	0.2	1.9	0.3	2.2	-0.1	2.5	0.2	0.32	0.28	0.09	0.07	0.17	0.14
Denmark	2.8	-1.3 ¹	1.6	-0.2 ¹	1.8	-1.1 ¹	2.0	-0.6 ¹	0.23	0.25 ²	0.04	0.06 ²	0.09	0.13 ²
Finland	2.9	0.8 ¹	1.6	0.6 ¹	1.8	0.2 ¹	2.0	0.6 ¹	0.25	0.21 ²	0.05	0.04 ²	0.10	0.08 ²
France	3.4	0.0	1.9	0.0	1.8	-0.1	2.2	0.0	0.28	0.29	0.06	0.07	0.12	0.15
Germany	3.4	0.8	1.8	0.3	1.9	0.4	2.1	0.2	0.28	0.24	0.06	0.05	0.13	0.10
Greece	4.7		2.0		2.3		2.8		0.33		0.09		0.18	
Hungary	3.4		1.9		1.8		2.2		0.29		0.07		0.13	
Ireland	4.5	0.4 ¹	1.9	-0.9 ¹	2.4	1.3 ¹	2.7	-0.1 ¹	0.31	0.33 ²	0.08	0.09 ²	0.16	0.19 ²
Italy	4.5	0.7 ¹	2.0	0.0 ¹	2.2	0.7 ¹	2.6	0.4 ¹	0.33	0.31 ²	0.09	0.08 ²	0.19	0.15 ²
Luxembourg	3.2	0.6 ¹	1.9	0.5 ¹	1.8	0.2 ¹	2.1	0.3 ¹	0.27	0.24 ²	0.06	0.05 ²	0.12	0.09 ²
Mexico	10.4	1.1 ¹	3.3	0.9 ¹	3.1	0.2 ¹	4.4	0.5 ¹	0.49	0.45 ²	0.20	0.16 ²	0.35	0.30 ²
Netherlands	2.8	-0.4 ¹	1.6	-0.9 ¹	1.7	0.5 ¹	2.0	-0.4 ¹	0.23	0.26 ²	0.05	0.06 ²	0.09	0.12 ²
Norway	2.8	0.1	1.6	0.0	1.8	0.0	1.9	0.1	0.25	0.22	0.06	0.04	0.12	0.09
Poland	4.3	1.5 ¹	1.9	0.5 ¹	2.3	1.0 ¹	2.5	0.5 ¹	0.31	0.27 ²	0.09	0.06 ²	0.19	0.12 ²
Spain	4.7	0.3	2.1	0.1	2.3	0.2	2.8	0.3	0.34	0.32	0.09	0.08	0.19	0.16
Sweden	3.0	1.0	2.0	0.6	1.5	0.4	2.0	0.7	0.25	0.20	0.06	0.03	0.11	0.07
Switzerland	3.3	-0.1	2.2	-0.1	1.5	0.0	2.2	0.2	0.27	0.31	0.06	0.09	0.13	0.16
United Kingdom	4.6	1.2	2.1	0.8	2.1	0.3	2.8	0.9	0.34	0.27	0.10	0.06	0.19	0.13
United States	5.5	0.7	2.1	0.5	2.6	0.1	3.0	0.6	0.37	0.30	0.12	0.08	0.22	0.17
Average ex US and Mexico	3.7	0.4	1.9	0.2	1.9	0.3	2.3	0.3	0.29	0.26	0.07	0.06	0.14	0.12
Median	3.4	0.6	1.9	0.3	1.9	0.2	2.2	0.3	0.29	0.27	0.07	0.06	0.13	0.13

1. Mid 1980s to around 2000.

2. Mid 1980s.

Source: Luxembourg Income Study (LIS) Key Figures, www.lisproject.org/keyfigures.htm (August 2008).

differences in growth are large by international comparison, although they are exceeded in some other OECD countries, notably the United Kingdom. Income at the 90th percentile is 5½ times income at 10th percentile, which is far higher than in any other OECD country except Mexico. The gap between income at the 90th and 50th percentiles, on the other hand, is only a little higher than in most other OECD countries, from which it can be inferred that incomes are very low relative to the median at the 10th percentile by international comparison.

The poverty rate – defined as household disposable income less than 50% of the median – increased by only 1.3 percentage points between around 1980 and 2000 to 17% (Table 1.4). This increase was in line with those in other OECD countries (excluding Mexico) but the poverty rate is much higher than in most other countries. Child poverty increased less than in most other OECD countries and elderly poverty decreased more, with both poverty rates again being considerably higher than in most other countries. For the working age population, a factor that contributes to the high poverty rate by international comparison is the low level of non-health public social spending directed towards this segment of the population (Figure 1.14).

Table 1.4. **Relative poverty rates (50% median income), around 2000**

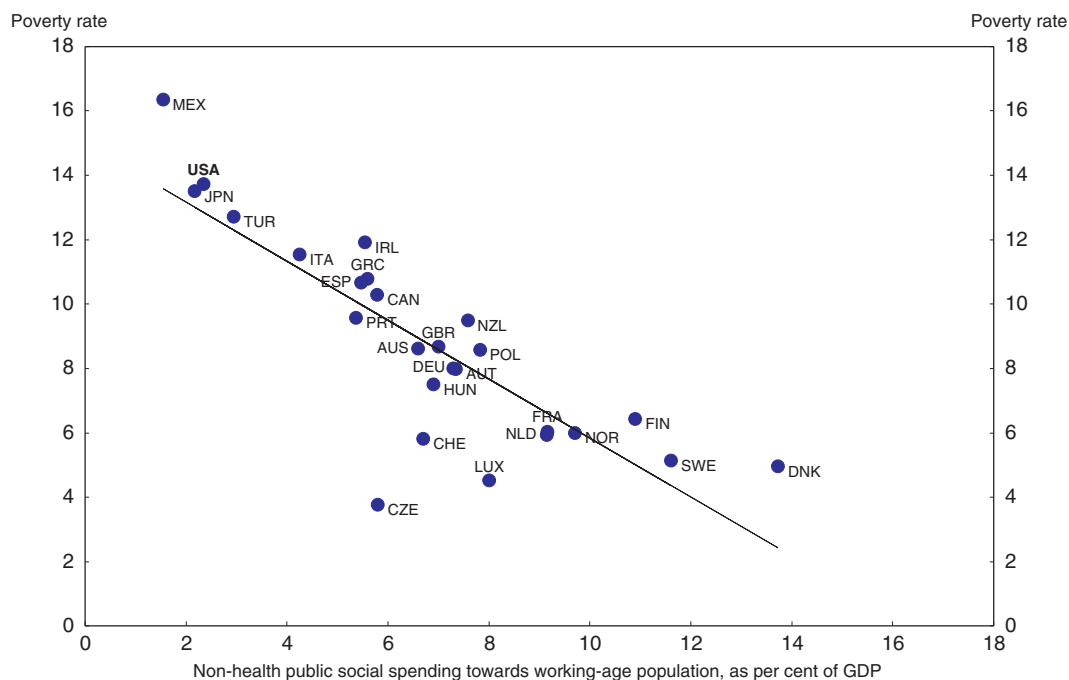
	Total population		Children		Elderly	
	%	Percentage point change since the early 1980s	%	Percentage point change since the early 1980s	%	Percentage point change since the early 1980s
Australia	13.0	1.7	14.9	1.1	23.0	-1.0
Austria	7.7	1.1 ¹	7.8	3.0 ¹	13.6	-4.9 ¹
Belgium	8.1	3.6 ¹	7.2	3.2 ¹	15.4	4.5 ¹
Canada	12.4	0.0	15.5	0.7	5.4	-16.6
Denmark	5.4	-4.8 ¹	5.4	-1.9 ¹	12.1	-19.5 ¹
Finland	5.4	-1.9 ¹	2.8	-5.1 ¹	8.5	0.0 ¹
France	7.3	-0.8	7.9	0.7	8.5	-1.8
Germany	8.4	3.1	9.0	6.2	10.4	-4.0
Greece	14.3		12.7		26.8	
Hungary	6.4		8.1		27.3	
Ireland	16.2	5.0 ¹	15.8	2.0 ¹	36.8	28.6 ¹
Italy	12.8	2.3 ¹	16.6	4.9 ¹	14.3	1.2 ¹
Luxembourg	6.1	0.8 ¹	9.1	3.9 ¹	3.7	-9.1 ¹
Mexico	21.5	0.8 ¹	26.9	3.4 ¹	28.3	1.0 ¹
Netherlands	4.9	1.0 ¹	6.3	3.6 ¹	1.6	-2.1 ¹
Norway	6.4	1.5	3.4	-1.4	11.9	5.6
Poland	13.2	3.5 ¹	18.5	6.7 ¹	7.0	-10.0 ¹
Spain	14.2	2.0	14.9	2.2	23.3	4.5
Sweden	6.6	1.3	4.3	-0.5	8.0	5.1
Switzerland	7.7	-0.1	6.7	2.4	18.4	-0.9
United Kingdom	12.5	3.3	17.0	8.0	16.5	-4.3
United States	17.0	1.3	21.9	1.5	24.7	-2.6
Average ex US and Mexico	9.4	1.3	10.2	2.2	14.6	-1.4
Median	8.2	1.3	9.1	2.3	13.9	-1.4


1. Mid-1980s to around 2000.

Source: Luxembourg Income Study (LIS) Key Figures, www.lisproject.org/keyfigures.htm (August 2008).

Summary measures confirm the picture of high and growing income inequality (see Table 1.3). The Gini index of income concentration increased more in the United States during the two decades since around 1980 than in any other OECD country except the

Figure 1.14. **Relative poverty among the working-age population and social spending, around 2000**



StatLink  <http://dx.doi.org/10.1787/487110175080>

1. Social spending is defined as public social spending excluding health, old-age and survivor benefits, as a share of GDP. Poverty rates are measured with respect to a threshold set at half of the median equivalised household disposable income.

Source: OECD Social Expenditure Database and data from the OECD Income Distribution Questionnaire.

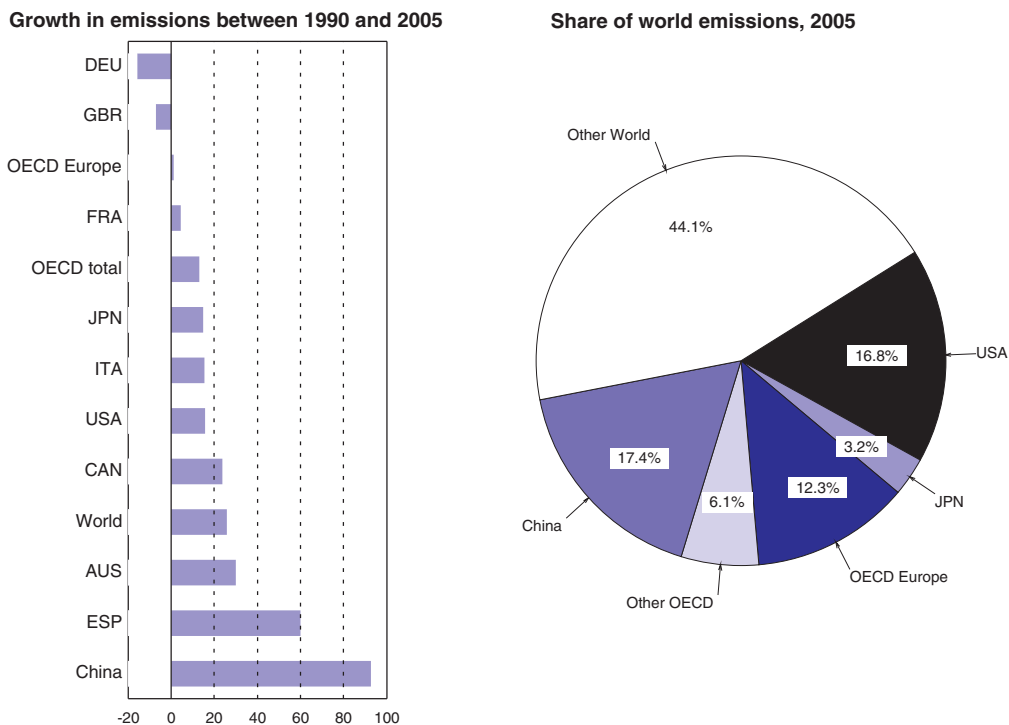
United Kingdom, which experienced the same increase as the United States. Income inequality on this measure is greater in the United States than in any other OECD country except Mexico. The Atkinson index of income inequality shows a similar picture.


In a review of the literature on increasing inequality in the United States, Gordon and Dew-Becker (2008) find that growing inequality in current incomes is associated with growing inequality of lifetime incomes and of intergenerational income inequality. The rise in current income inequality has not been offset by either an increase in the probability of moving up the income distribution over a working life (indeed there is weak evidence that the opposite has occurred) or an increase in the probability of the next generation doing so. Corak (2004) finds that there is less intergenerational mobility of earnings in the United States and the United Kingdom than in the other OECD countries included in this study. Up to 50% of the earnings advantage that high-income young adults have over their low-income counterparts in the United States and the United Kingdom is associated with the fact that they were the children of high-earning parents, compared with 40% in France, 20% in Canada, Finland, and Norway, and 15% in Denmark. This study concludes that giving children life chances that are less dependent on family background requires not only reducing child poverty, but also on reducing the impact of socio-economic background on education outcomes, which in the United States is above the OECD average according to the 2006 PISA study.

Substantial reductions in CO₂ emissions will be required if international efforts to combat global warming are to succeed

Sustainability challenges also lie ahead in the area of climate change. The balance of scientific evidence indicates that anthropogenic emissions are a major cause of global warming, a view that is now also shared by the US government. Combating global warming will require large reductions in greenhouse gas (GHG) emissions.⁸ The United States remains committed to the United Nations Framework Convention on Climate Change (UNFCCC) goal of returning GHG emissions to their 1990 level but has not met this goal – US GHG emissions in 2005 were 16% higher than in 1990 (Figure 1.15). This increase was somewhat greater than the OECD total and bigger than occurred on average in European OECD countries, where emissions were broadly stable. However increases in GHG emissions in non-OECD countries dwarfed developments in the United States and other OECD countries: China's GHG emissions almost doubled, accounting for 41% of the increase in global GHG emissions over 1990-2005, compared with 22% for OECD countries (of which one half was attributable to the United States). The increase in the volume of GHG emissions in the United States, as in other countries, is mainly attributable to emissions from energy use. Such emissions in the United States were 85% of total emissions in 2005.

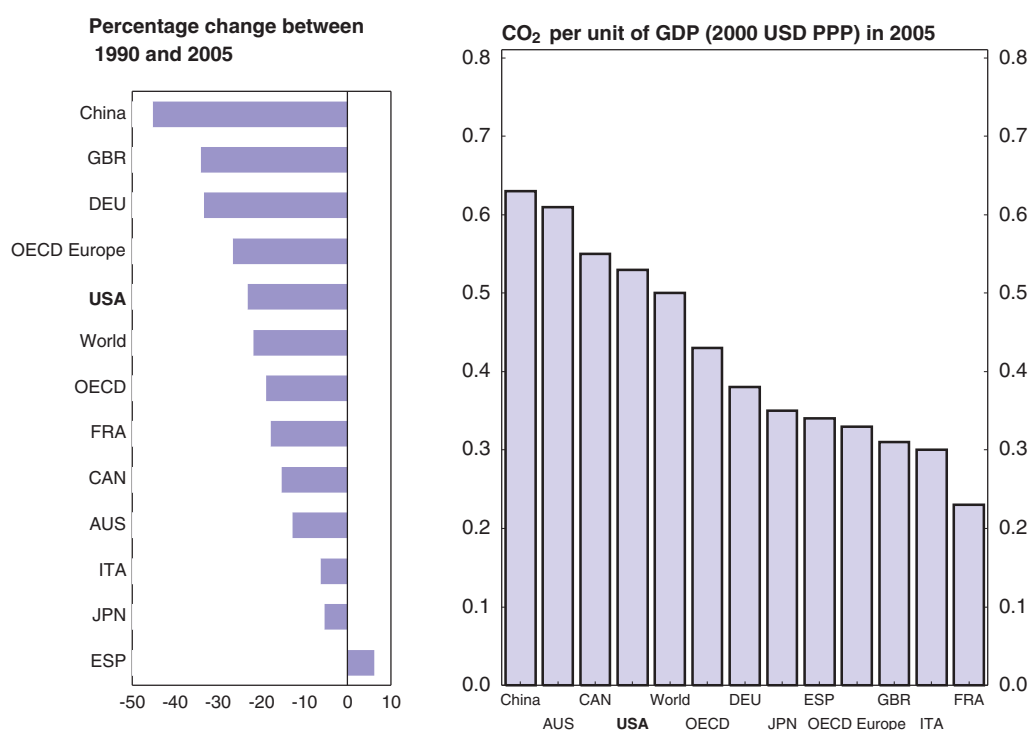
Figure 1.15. **Greenhouse gas emissions**



StatLink  <http://dx.doi.org/10.1787/487137334776>

Source: OECD, Environmental Database.

The United States has nevertheless significantly reduced the GHG emissions intensity of the economy since 1990. The CO₂ emissions intensity of output (Energy-related CO₂ emissions per unit of GDP in 2000 PPP USD) fell by 23% between 1990 and 2005 (Figure 1.16).

Figure 1.16. CO₂ emissions intensity of output¹

StatLink  <http://dx.doi.org/10.1787/487146021252>

1. From fuel combustion.

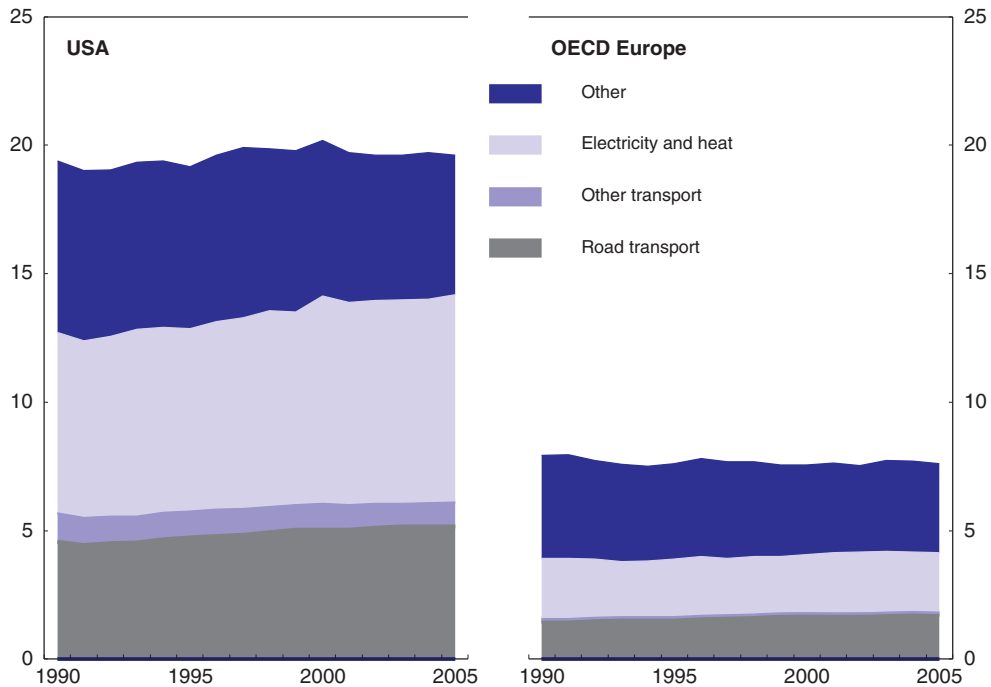

Source: OECD, *Environmental Database*.

This reduction was greater than for the OECD total but slightly less than achieved in European countries on average and much less than in China. The CO₂ emissions intensity of the economy is higher in the United States than in European countries on average but remains lower than in China.

CO₂ emissions per capita were broadly stable in the United States between 1990 and 2005, as in other OECD countries; by contrast, there was a very large increase in China. Large increases in emissions from electricity and heat production and from road transport in the United States were almost entirely offset by reductions in emissions in other sectors (Figure 1.17). By way of comparison, CO₂ emissions per capita from electricity and heat production and from road transport were fairly stable on average in Europe. CO₂ emissions per capita in the United States are almost three times the OECD Europe average and five times the level in China. Approximately one half of the difference in per capita CO₂ emissions between the United States and Europe is attributable to electricity and heat production with transportation (mainly road transport) accounting for a further one third of the difference. Emissions from electricity production in the United States are relatively high owing to intensive reliance on traditional coal-fired power stations. This technology choice reflects the low cost of coal relative to natural gas in parts of the country, fuel prices that are distorted by subsidies and the absence of strong financial incentives to encourage more efficient use of fossil plants or to use cleaner fuels for power generation (IEA, 2008). Even though transit investment and usage have been increasing in the United States, development is still limited compared to OECD Europe, contributing to transport emissions. Other factors that contribute to relatively high transport emissions are the high annual

Figure 1.17. **CO₂ emissions per capita per sector**

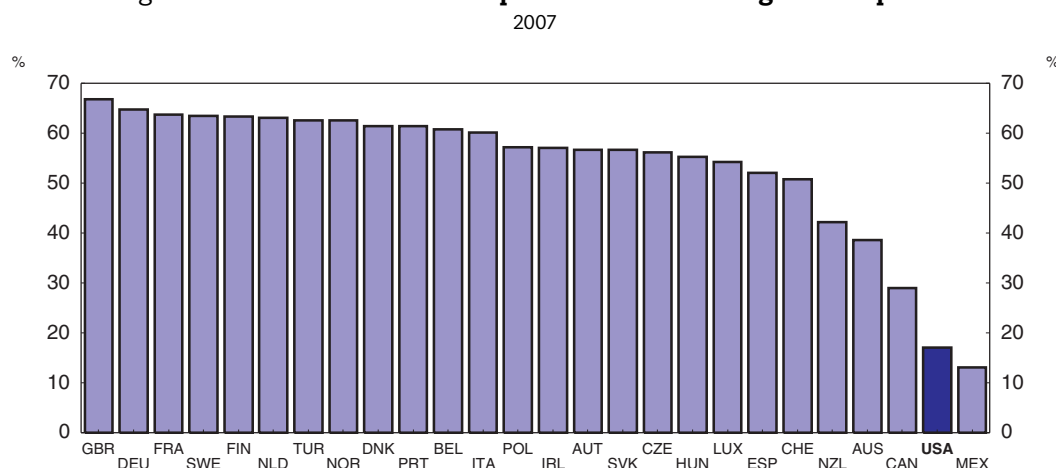
Tonnes, thousand

StatLink  <http://dx.doi.org/10.1787/487220600258>

Source: OECD, Environmental Database.

distances travelled per capita and the inferior mileage performance of the vehicle fleet (United States passenger transport, together with Canada's, has the worst fuel economy among OECD countries) (*ibid.*), although US fuel economy standards have recently increased twice for light trucks and are currently improving for passenger automobiles. Low road fuel taxes (Figure 1.18) may contribute to higher annual vehicle miles travelled and household preferences for lower fuel economy vehicles than would be the case if fuel prices reflected the environmental and (national security) costs of these choices.

US policy on GHG emissions has a major impact on global emissions as it is a large emitter, accounting for approximately 17% of global emissions in 2005; this is a similar proportion to China, and accounts for almost one half of total OECD emissions (see Figure 1.15). The US government did not ratify the Kyoto Protocol, which would have entailed a commitment to reducing absolute GHG emissions to 7% below the 1990 level by 2012, but is interested in participating in a future global agreement to reduce GHG emissions. Instead, the government adopted the goal of reducing the GHG emissions intensity of the economy by 18% over 2002-12. This target was not particularly challenging in view of the reduction that had been achieved in the previous decade and the business-as-usual projection at the time of a 14% decline between 2002 and 2012 (*ibid.*). Recently, the President also announced a new GHG emission reduction goal to stop the growth in US GHG emissions by 2025, and the government signed a G8 declaration that will cut GHG emissions by 50% by 2050. Moreover, the Administration has stated that it is willing to include this plan in an international agreement, so long as all major economies are prepared to include their plans in such an agreement. To achieve the goal of reducing GHG

Figure 1.18. **Share of taxes in premium unleaded gasoline prices**

StatLink  <http://dx.doi.org/10.1787/487226133841>

Source: International Energy Agency, *Energy Prices and Taxes*.

intensity, the government is focusing on improving vehicle fuel economy standards, road pricing, and supporting energy R&D for cleaner energy supply technologies, renewable sources, methane capture and use, and nuclear (*ibid*). In this regard, it has provided support for first-generation bio-fuels. However, they have limited potential to reduce GHG (or enhance security of energy supply) and are an extremely inefficient means of reducing such emissions (Doornbosch and Steenblik, 2007). In addition, it has been estimated that the overall environmental impact (including the effect of GHG emissions) of first-generation bio-fuels in the United States is substantially worse than gasoline or mineral diesel (Zah *et al.*, 2007). The government is also supporting the development of second-generation bio-fuels, which promise to be more efficient but for which significant technical barriers remain to be overcome before commercialisation.

The scale of the reductions in GHG emissions necessary to combat global warming effectively and the size of the United States' emissions suggest that it will have to achieve much larger reductions in the medium- and long-terms than are currently being targeted if global cooperation in this regard is to be successful. For the necessary reductions to be achieved efficiently, carbon emissions will have to be priced at a level that reflects their environmental costs. This would provide incentives for all emitters to reduce emissions to the point where their marginal abatement costs equal the market price of carbon, thereby minimising abatement costs. Internalising the environmental costs of carbon emissions would also encourage the development of technologies that reduce such emissions without government running the risks of backing inefficient technologies and of capture by special interest groups. Such pricing of carbon emissions could be achieved by introducing a cap-and-trade system, which would require firms to hold permits for their CO₂ emissions and allow them to sell any surplus permits or buy permits that are lacking, or a carbon tax. Measures would need to be taken to offset the regressive effects of pricing CO₂ emissions on income distribution, spending on energy-intensive items representing a much higher proportion of income for low-income households than for high-income households (CBO, 2008b).⁹ Such transfers could be financed from the sale of emission permits or from the receipts from a carbon tax.

Applying these carbon pricing policies will only achieve substantial emission cuts at a manageable cost if other large emitters, countries, and sectors also adopt similar policies. Putting a price on carbon that covers a large share of global emissions will have to overcome a wide range of international competitiveness, political economy, and equity concerns.

Macroeconomic policy challenges

Policy makers are facing a dual challenge of averting a severe and protracted recession while allowing the economic imbalances that built up in the past decade to be corrected. This entails combining substantial short-term economic stimulus with a set of policies that will improve financial regulation and supervision and restore long-run fiscal sustainability.

The Federal Reserve has taken aggressive pre-emptive actions to support the economy since the onset of the crisis in August 2007.¹⁰ In light of the extreme difficulties the US economy is facing, there is scope to further increase the size of the Federal Reserve's balance sheet in order to expand its lending initiatives and to reduce the federal funds rate below 1%. Once the crisis has passed, this quantitative easing should be pulled back and the federal funds rate should be raised, first as a recalibration to better financial conditions and then in response to accelerating activity, in order to keep inflation expectations well anchored.

Fiscal policy has also contributed to supporting economic activity in the wake of the financial crisis, but the effect of the 2008 stimulus package has already waned. An additional fiscal stimulus package would be desirable in the near term if economic prospects and financial conditions do not quickly improve. Once the crisis has passed, the focus should shift to restoring fiscal sustainability by reducing the budget deficit and tackling the challenge of rising entitlement spending. In view of the scale of the required adjustment, this will likely entail both expenditure and revenue measures. The general government budget is not on a sustainable path – as noted above, the fiscal gap is currently around 5% of GDP for the next 50 years and will be higher the longer the delay in closing it. And these projections do not take into account the eventual budget costs of resolving the financial crisis, which could be substantial.

Policy challenges in overcoming the financial crisis (Chapter 2)

Although some observers have noted that the low level of the federal funds rate from 2003 to 2005 contributed to a credit boom (Boeri and Guiso, 2007), there is reason to believe that the conduct of monetary policy had at most only a subsidiary role in the formation of the financial crisis. First, one important reason why interest rates remained low in the United States and around the world was the so-called “global savings glut”, that is the supply of savings has been large relative to the demand for investment funds. Indeed, long-term rates continued to decline even after the Federal Reserve began to tighten policy in June 2004, which then-Chairman Alan Greenspan famously regarded as a conundrum (Greenspan, 2005). Second, even with hindsight, it appears that the actual monetary stance was only a bit looser than what would have been optimal. Using the multipliers of the Federal Reserve's large scale econometric model described in Box 1.2, Elmendorf (2007) calculates that if the federal funds rate had been only 50 basis points higher from the second quarter of 2004 through the third quarter of 2006, the unemployment rate would have been near 5% (the OECD estimate of the NAIRU) and core inflation close to 2%. In short, under this alternative scenario, a slightly tighter monetary stance would have produced a nearly-optimal economic outcome, both in real and in

nominal terms. It is hard to say what the effects of this extra tightening would have been, but it is unlikely that this small adjustment in financial conditions would have any noticeable effect.¹¹

By contrast, the failure of regulatory policy to properly take into account the implications of financial innovation and the global savings glut almost surely played a major role in determining the financial situation. Regulators do not seem, at least with hindsight, to have fully appreciated the risks involved in the credit boom. Notably, the Federal Reserve had the authority to impose stricter underwriting standards for non-traditional mortgage lending, as it did for commercial real estate lending. Timely action in this point could have mitigated the crisis. The large inflow of savings and low global interest led to an expansion of lending that turned out to be much riskier than supposed and that was not supported by adequate capital and liquidity holdings. Much of this lending occurred through structured credit vehicles that were off banks' balance sheets. For this reason, financial institutions did not need to hold capital against such lending. In addition, these vehicles were engaged in maturity transformation, borrowing short-term to finance long-term assets. While the process of securitisation had the potential to distribute risk to those who can better bear it, it also impaired the flow of information and generated critical incentive problems. Credit ratings agencies had the potential to play an important role in resolving or mitigating several of these frictions, but they also failed in this regard.

In sum, the main policy challenge for policymakers is to address these regulatory failures. In the short run, the main issue is to minimise the disruption in the financial sector to the real economy while allowing a necessary adjustment process to go forward. Above all, the credit losses and write-offs incurred by many financial institutions as well as a general re-pricing of risk will mean that the availability of credit for households and firms, especially those who appear to be less safe, will be curtailed. Policy can help this re-intermediation process to move on in an orderly fashion by supporting liquidity in the short-term funding market and ensuring that capital continues to adequately fund the housing market. In the longer run, it will be necessary to implement a comprehensive reform of the regulatory and supervisory framework for financial markets to address the flaws exposed by the ongoing crisis and thus to reduce the likelihood of such crises recurring in the future. As indicated in the Treasury blueprint, the current system of functional regulation – with its myriad of regulatory agencies across segregated functional lines of financial services – has been overtaken by the ongoing process of convergence in the financial sector and other financial innovations, and a more unified system should be adopted (Treasury, 2008). Among the various other issues that await policymakers, the two main priorities should be the re-establishing of the process of securitisation and the re-assessment of the government's involvement in the market for housing finance.

Policy challenges in health care reform (Chapter 3)

There is considerable concern in the United States about the performance of the health care system in contributing to the achievement of the nation's health objectives, as laid out in Healthy People 2000 (including to reduce and ultimately eliminate health inequalities among various segments of the population, and to increase life expectancy and quality of life among Americans of all ages), the system's costs, which are currently 15% of GDP and rising quickly, and equity of financial access to health care. Indeed, life expectancy in the United States is lower than in most other OECD countries and is rising more slowly, despite considerably higher health expenditures. Differences exist in life expectancy by socio-economic background, with lower-income groups having benefited less than others

from the rise in life expectancy in recent decades. Of course, several factors other than health care may also contribute to this disparity. A significant minority of Americans either do not have health insurance or have insurance policies that leave them exposed to major health-related financial risks. It is plausible that the inequality of financial access to health care contributes to the mediocre health status of the US population, despite the high levels of health expenditure on average and of GDP per capita.

Most of the uninsured or underinsured are not offered health insurance by their employer. This leaves them with the option of buying insurance in the individual market, where prices are high owing to adverse selection risks, or not being insured. Accordingly, one way of expanding health insurance coverage is to improve the functioning of the individual and small group market by reducing adverse selection risk through compulsory pooling, as discussed in Chapter 3. This reform, which entails community rating of policies, is the cornerstone of a package of reforms that would also provide subsidies for the purchase of health insurance policies by low-income households financed by the elimination of the tax exclusion on compensation in the form of employer-provided health benefits, and make health insurance mandatory. Such a reform package would substantially improve financial access to health care for low-income households, which account for most the current uninsured or underinsured population, and effect a considerable redistribution of income from high- to low- and middle-income households, thereby partially reversing the increase in income inequality in recent decades. Reforms to reduce the costs of Medicare (the public insurance scheme for persons aged 65 or over and for qualified disabled persons aged less than 65), which currently amount to 3% of GDP, are also discussed in the chapter.

Notes

1. The most important differences in assumptions between the Alternative Fiscal Scenario (AFS) and the Extended Baseline Scenario (EBS) are that the personal income tax cuts scheduled to expire in 2010 in the EBS do not do so in the AFS and that the Alternative Minimum Tax (AMT) is indexed for inflation after 2007 in the AFS but not in the EBS. The other main difference between the two scenarios is that physician payment rates grow with the Medicare economic index in the AFS but at the lower growth rates scheduled under the Sustainable Growth Rate Mechanism (see Chapter 3) in the EBS. Accordingly, revenue is lower in the AFS than in the EBS and expenditure is somewhat higher, accentuating the gap between current federal budget policy and a sustainable policy.
2. Population ageing accounts for approximately 20% of the projected increase in Medicare and Medicaid outlays between 2007 and 2030. As the contribution of population ageing to such outlays is projected to be stable in subsequent decades, further increases entirely reflect rising expenditure per beneficiary.
3. Social Security pays pension benefits to retired workers and their dependents and survivors, and disability benefits to disabled workers who are younger than the normal retirement age and to their dependents.
4. In the EBS, the increase in the budget deficit in coming decades is much smaller than in the AFS mainly owing to higher revenues. The federal budget moves into surplus under this scenario from 2011 through 2024 but subsequently shows rising deficits owing to continued increases in health care expenditures and interest outlays, with the deficit reaching 4½ per cent of GDP by 2050. Federal government debt falls to a trough of 11% of GDP in 2026, but rises thereafter, slightly exceeding the 2007 level by 2050.
5. The fiscal gap for the period up to 2057 on the EBS is much smaller, at 0.6% of GDP, mainly owing to the programmed revenue increases in this scenario.
6. For example, the CBO estimates that fiscal gap for the next 75 years under the AFS is 6.9% of GDP if closed in 2008. If adjustment is delayed until 2020, this gap will have grown to 9.0% of GDP. Delaying adjustment further increases the gap to 11.5% of GDP by 2030, and 15.2% of GDP by 2040.

7. An equivalence adjustment is made to calculate income per person in a household allowing for economies of scale as the number of persons in a household grows. In the Luxembourg Income Study data that are used in the rest of this section, each member of a given household is assumed to have the same equivalent income and the square root of the number of persons in the household is used as the equivalence scale. Unrelated individuals are considered to be one-person households.
8. Limiting global warming to 2-3 degrees Celsius would require a reduction of global energy-related to CO₂ equivalent emissions of roughly 39Gt of CO₂ in 2050, equivalent to a reduction of approximately two thirds of emissions on the IEA's business-as-usual scenario (Stern, 2006; IEA, 2006).
9. Average annual expenditures on energy-intensive items as a percentage of income from the lowest to the highest income quintile are, respectively, 22.3%, 12.1%, 8.9%, 7.0%, and 4.2% (Bureau of Labour Statistics, *Consumer Expenditure Survey*, 2006, available at www.bls.gov/cex/2006/Standard/quintile.pdf)
10. Some observers had disapprovingly noted that the stance in the first half of 2008 was substantially easier than mandated by a contemporaneous Taylor rule. However, those monetary policy settings were well justified. First, expected gaps are more important than contemporaneous ones, since the economy reacts to monetary policy with a lag. Thus, an extremely accommodative stance was consistent with a near-term scenario of sub-par economic growth and slowing prices. Second, some of the past policy easing can be accounted for by a recalibration of policy to tight financial conditions. Third, the past stance was also justified as an insurance policy against fat-tail risks, which, if anything, turned out to be underestimated.
11. Nevertheless, one should recognise that we have limited understanding about what drives asset bubbles, but the process is likely to be non-linear and influenced by psychological effects. Thus, we cannot rule out that even a small change in the conduct of monetary policy could have had a major impact.

Bibliography

- Agarwal, S, C. Liu and N. Souleles (2008), "The Reaction of Consumer Spending and Debt to Tax Rebates – Evidence from Consumer Credit Data", *Journal of Political Economy*, forthcoming.
- Boeri, T. and Guiso (2007), "Subprime Crisis: Greenspan's Legacy", *VoxEU.org* column, August.
- Congressional Budget Office (CBO, 2007), *The Long-Term Budget Outlook*, December.
- Congressional Budget Office (CBO, 2008a), *The Budget and Economic Outlook: Fiscal Years 2008 to 2018*, January.
- Congressional Budget Office (CBO, 2008b), *Options for Offsetting the Economic Impact on Low-and Moderate-Income Households of a Cap-and-Trade Program for Carbon Dioxide Emissions*, June.
- Corak, M. (ed.) (2004), *Generational Income Mobility in North America and Europe*, Cambridge; New York: Cambridge University Press.
- Curcuru, S., T. Dvorak and F. Warnock (2007), "The Stability of Large External Imbalances: The Role of Returns Differentials", *International Finance Discussion Papers*, No. 894, Board of Governors of the Federal Reserve System.
- Deutsche Bank (2008), "Unwinding leverage", *Global Economic Perspectives*, July 28.
- Diamond, D. (1991), "Monitoring and reputation: The choice between bank loans and privately placed debt", *Journal of Political Economy*, Vol. 99, pp. 689-721.
- Doornbosch, R. (2001), "A Primer on Emerging Market Crises", unpublished manuscript, Massachusetts Institute of Technology, January.
- Doornbosch, R., and R. Steenblik (2007), "Biofuels: Is the cure worse than the disease?", OECD SG/SD/RT(2007)3, Round Table on Sustainable Development, Paris.
- Elmendorf, D. (2007), "Was the Fed Too Easy for Too Long?", unpublished manuscript, The Brookings Institution, November.
- Girouard, N., M. Kennedy, P. van den Noord, C. André (2006), "Recent House Price Developments: The Role of Fundamentals", OECD Economics Department Working Paper, No. 475, OECD.
- Gordon, R.J. and I. Dew-Becker (2008), "Controversies about the Rise of American Inequality: A Survey," NBER Working Paper, No. 13982, April.

- Greenspan, A. (2005), Testimony of Chairman Alan Greenspan, Monetary Policy Report to Congress, Board of Governors of the Federal Reserve System, February.
- Guichard, S. and D. Turner (2008), "Quantifying the effect of financial conditions on US activity", OECD Working Paper, No. 635, September.
- IEA (2006), *Energy Technology Perspectives*, Chapter 5, Road Transport Technologies and Fuels, OECD, Paris.
- IEA (2008), *Energy Policies of IEA countries: The United States 2007 Review*, Paris.
- Mayer, C. and T. Sinai (2008), "Housing and Behavioral Finance", Federal Reserve Bank of Boston Conference on Behavioral Economics, Conference Volume, forthcoming.
- Mayer, C. and K. Pence, (2008), "Subprime Mortgages: What, Where, and to Whom?", NBER Working Paper, No. 14083, June.
- Mian, A. and A. Sufi (2008), "The Consequences of Mortgage Credit Expansion: Evidence from the 2007 Mortgage Default Crisis", NBER Working Paper, No. 13936, April.
- Mishkin, F. (2007), "Housing and the Monetary Transmission Mechanism", *Finance and Economics Discussion Series*, No. 2007-40, prepared for the Federal Reserve Bank of Kansas City's 2007 Jackson Hole Symposium.
- OECD (2007), *OECD Economic Surveys: United States*, Paris.
- OECD (2008a), *Economic Outlook*, No. 83, OECD, June.
- OECD (2008b), *Economic Outlook*, No. 84, OECD, November.
- OECD/FAO (2007), *Agricultural Outlook 2007-2016*, OECD/FAO, Paris, Rome.
- Piketty, T. and E. Saez (2006), "The Evolution of Top Incomes: A Historical and International Perspective", NBER Working Paper, No. 11955, January.
- Reifschneider, D., R. Tetlow and J. Williams (1999), "Aggregate Disturbances, Monetary Policy, and the Macroeconomy: The FRB/US Perspective", *Federal Reserve Bulletin*, Vol. 85, pp. 1-19.
- Stern, N. (2006), *Stern Review: The Economics of Climate Change*, London.
- Stiglitz, J. and A. Weiss (1981), "Credit Rationing in Markets with Imperfect Information", *American Economic Review*, Vol. 71, pp. 393-410.
- Treasury (2008), *The Department of the Treasury Blueprint for a Modernized Financial Regulatory System*, The Department of the Treasury, Washington DC, March.
- Warsh, K. (2008), *Financial Market Turmoil and the Federal Reserve: The Plot Thickens*, speech delivered at the New York University School of Law, *Global Economic Policy Forum*, New York, April.
- Zah, R., H. Böni, M. Gauch, R. Hirschler, M. Lehmann, and P. Wäger (2007), *Ökobilanz von Energieprodukten: Ökologische Bewertung von Biotreibstoffen*, EMPA für die Bundesamt für Energie, die Bundesamt für Umwelt, und die Bundesamt für Landwirtschaft, Bern.

ANNEX 1.A1

Progress in structural reform

This annex summarises recommendations made in previous *Surveys* and action taken since the last *Survey* was finalised in May 2007.

Recommendations	Action taken since the previous <i>Survey</i> (May 2007)
A. Labour markets	
Avoid increasing the federal minimum wage.	The federal minimum hourly wage has increased from USD 5.85 in 2007 to USD 6.55 in 2008, and is schedule to rise to USD 7.25 in 2009.
Implement strategies to increase employment of the disabled.	No action.
Monitor whether guidelines for labour market programmes are being followed.	No action.
Expand trade adjustment assistance.	No action.
Speed up the transition from age at which full social security benefits are paid from 65 to 67 and index it to further increases in life expectancy thereafter.	No action.
The Earned Income Tax Credit should be increased.	No action.
B. Education	
The No Child Left Behind (NCLB) legislation should be re-authorised.	NCLB was re-authorised.
The NCLB framework of standards, assessment and accountability should be extended through upper secondary education.	The Administration of President Bush has proposed new regulations to strengthen NCLB.
Greatly raise limits on Stafford loans, especially for unsubsidised direct loans, so that they cover the full cost of study.	The limits were raised only slightly.
The interest rate on Stafford loans should vary with the long term bond rate.	The interest rate on Stafford loans was reduced in line with changes in the long-term bond rate.
The default repayment plan should be income contingent.	No action.
Simplify or abolish tax preferences for higher education expenses.	No action.
C. Ageing and health care	
Raise the early and normal retirement age.	No action beyond the already legislated increases.
Reduce the replacement rate for higher earners and raise the Social Security tax cap.	The Administration of President Bush has proposed "progressive indexation" of initial benefits.
Introduce savings accounts to complement Social Security.	Under the proposal of the Administration of President Bush, such accounts would be financed out of existing payroll taxes.
Ensure that prescription drug benefits do not jeopardise Medicare's long run solvency.	No action.
Roll back the unlimited tax exclusion of employer furnished health insurance.	The Administration of President Bush has proposed a standard tax deduction for health insurance.
D. Product markets	
Improve energy infrastructure, in particular electricity transmission.	No change since the Energy Policy Act of 2005.
Roll back extra support given to farmers in recent years.	The 2008 Farm Act indirectly provided further support to farmers.

Recommendations	Action taken since the previous <i>Survey</i> (May 2007)
E. Financial markets	
Break links of Government Sponsored Enterprises with the federal government.	The federal government had to intervene to ensure that Fannie Mae and Freddie Mac would not fail.
Continue corporate governance and accounting reforms.	The 2002 Sarbanes Oxley Act is not yet fully implemented for small companies as some deadlines have been extended.
F. Taxation	
Increase the limits for contributions to tax free savings accounts.	Congress has continued to gradually increase contribution limits for tax free health savings accounts.
Reduce deductions for mortgage interest and state and local income tax.	No action.
Increase reliance on consumption taxation and consider the introduction of a value added tax.	No action.
G. Environment	
Consider introducing a domestic cap and trade system for CO ₂ emissions.	The Administration of President Bush has set a target of cutting GHG intensity by 18% over 10 years but is opposed to a cap and trade system for CO ₂ . California has signed into law measures to require any new carbon project to create offsets by showing that it has reduced carbon dioxide and equivalent gases.
Consider a carbon tax on all carbon based energy products.	No action.

Chapter 2

Overcoming the financial crisis

The financial crisis that emerged in mid-2007 has caused considerable economic disruptions in the United States and elsewhere, and exposed major flaws in the global financial system. After examining the origins of the crisis, this chapter recommends specific policy responses to resolve the immediate problems and discusses how to make the US financial system more resilient and stable in the future.

The crisis that started in mid-2007 is widely seen as the largest disruption of financial markets in decades. Large segments of the US financial system have been in a perilous state for more than a year now and, despite actions by the authorities and market participants, there is no clear end in sight. Furthermore, the crisis has had serious repercussions in financial markets elsewhere, especially in Europe, given the global nature of such markets. The present situation has a number of features that were never seen before, such as the large amounts of lending to subprime borrowers, the expansion of securitisation, the disconnection between loan originators and final investors, the questionable assessment of credit rating agencies and the unparalleled resort to off-balance sheet vehicles. Yet, these developments unfolded in the context of a traditional credit boom, seen before in different markets, with known characteristics such as an erosion of lending standards, under-pricing of risk and skyrocketing asset prices.

The crisis originated in the US housing sector following the accumulation of enormous mortgage debts by households. As noted in the previous *Survey*, mortgage originators took the risk of extending mortgage loans to borrowers previously not considered creditworthy, leading to an accumulation of low-quality subprime debts. The sudden underperformance of these subprime mortgages was the trigger of the crisis, but the relatively limited amount of subprime mortgages was not enough by itself to create such a large crisis. While the ultimate losses from the mortgage-market meltdown have been estimated to be nearly negligible relative to the size of financial markets, they have rapidly spread in the highly interconnected global financial system. Various financial institutions have been successively affected, including mortgage lenders, commercial as well as investment banks, and the two major government-sponsored enterprises (Fannie Mae and Freddie Mac).

In the United States, the Federal Reserve, the Federal Deposit Insurance Corporation (FDIC) and the Department of Treasury have taken lead roles in responding to the crisis. The central bank has moved aggressively to cut interest rates, provide liquidity through new windows and assist systemically important financial institutions on the verge of bankruptcy. While these actions have helped to stabilise the situation in the short term, they have taken monetary policy into largely uncharted territories and therefore raise questions about their long-term effects. Has the central bank, over the course of the Bear Stearns and AIG operations, taken too much credit risk by accepting collateral of unknown quality, thus acting as a quasi-fiscal agent of the government? By rescuing financial institutions that underpriced credit risk, did it aggravate the moral hazard, with adverse effects on the future behaviour of lenders and investors? Is it the role of the central bank to come to the rescue of large-scale and interconnected financial institutions? While it is too soon to answer these questions, once the crisis is resolved, the role of the central bank will be reassessed. Meanwhile, the financial crisis has revealed many flaws in US financial regulatory policies, which will take time to repair. In the words of the key policymakers, “[t]he current system of functional regulation has several fundamental problems” (Treasury,

2008a). Lessons drawn from the present financial crisis will help to reduce the likelihood of crises recurring in the future.

The first section of this chapter discusses the origin of the crisis and explains how it has unfolded and become so severe. The US authorities have responded to these events with aggressive and timely policy actions. However, as discussed in the second section, further measures should be quickly implemented to contain the damage, as financial markets remain in a perilous state and the economic outlook is bleak. Further challenges lie ahead since the crisis has revealed major flaws in the financial system. The final section lays out the argument for a comprehensive reform of the regulatory and supervisory framework.

The anatomy of the crisis

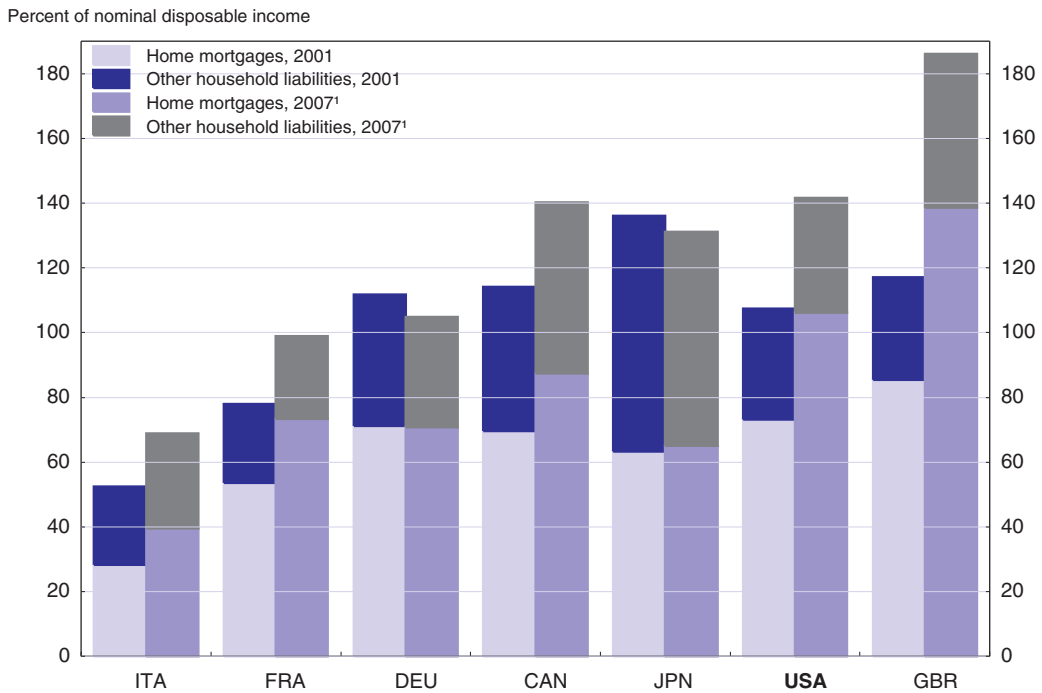
Although the origin of the crisis is not yet fully understood, it is widely agreed that its roots lie in the accumulation of low-quality subprime mortgage loans and their securitisation. While the origination of mortgage loans to less creditworthy borrowers was initially subject to strict underwriting standards, the quality of these loans deteriorated sharply after 2004, as mortgage originators discovered that investors were eager to hold higher yield securities based on subprime loans as credit quality on the earlier vintages of subprime loans was very good and that regulatory or prudential rules did not seem to impede associated lending. Once delinquent subprime mortgage loans started to increase, causing large losses on associated instruments, market sentiment shifted rapidly. Trust among market participants dissipated, leading to a sudden drying-up of liquidity, thereby amplifying the financial crisis and pushing several institutions to the brink of bankruptcy.


Mortgage lending expanded rapidly, and the quality of loans deteriorated

As discussed in the previous *Survey*, since the start of the decade US households have sharply increased their indebtedness relative to their income, notably their take-up of mortgage loans. US household debt increased more than in most OECD countries for which data are available, except the United Kingdom (Figure 2.1) and Australia. In 2001, in the midst of the recession, a total of USD 2.2 trillion new mortgage loans were originated, 85% of them being safe agency loans (that is, essentially issued by government-sponsored enterprises such as Fannie Mae and Freddie Mac) or prime jumbo loans (Figure 2.2). (Key features of the major categories of mortgage loans in the United States are described in Annex 2.A1). The low level of interest rates encouraged a continued rapid increase in the total volume of mortgage lending, which surged to nearly USD 4 trillion in 2003. An important caveat is that these data refer to gross mortgage originations, and thus they may exaggerate the expansion net mortgage borrowing over this period, since many new originations refinanced existing debt. In any case, while the increase in lending was spread across all mortgage classes, conforming mortgages rose at their fastest pace until 2003, reflecting a refinancing boom. By contrast, after 2003, lending standards and the quality of new mortgage loans began to deteriorate. The share of conforming loans declined, while home equity lending as well as Alt-A and subprime mortgages expanded rapidly. The share of these three lower-quality categories made up nearly 50% of the mortgage originated in 2006, up from only 15% in 2003.

Widespread securitisation, including under private labels

The past two decades have witnessed a fundamental transformation in the way that funds have been channelled towards the mortgage market. Mortgage loans were traditionally, and still are in many OECD countries, originated by commercial banks and

Figure 2.1. **Household liabilities in selected OECD countries**

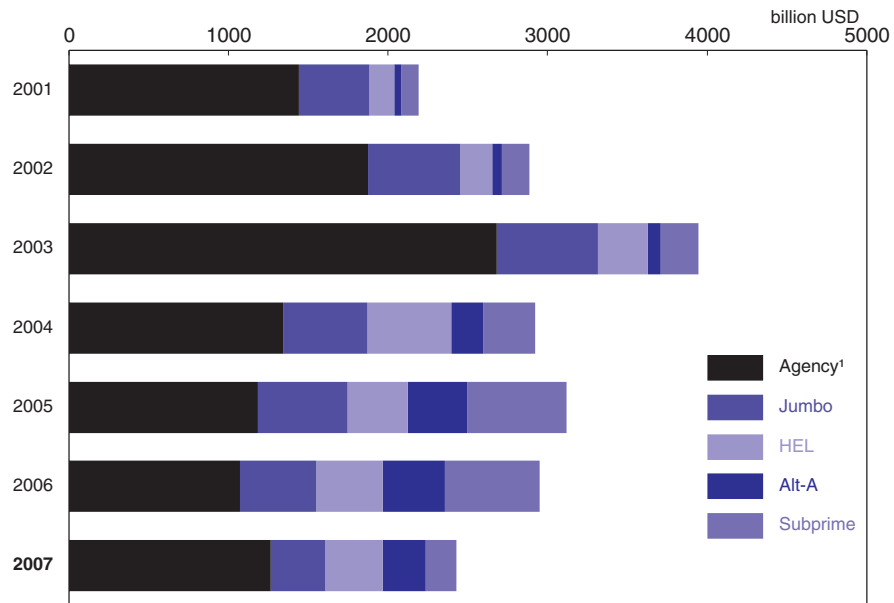
StatLink  <http://dx.doi.org/10.1787/487234740170>


1. 2006 for Italy, Germany and Japan

Source: OECD (2008)

funded by the deposits of retail customers. The banks themselves evaluated the loans and assumed the risks. In the United States, this system collapsed in the Savings and Loan (S&L) crisis of the mid-1980s, partly because S&Ls failed to tackle the risk inherent in the funding of long-term fixed interest mortgages by means of short-term floating-rate deposits. Securitisation was seen as a part of the solution to this problem because it allowed mortgage lenders to sell their loans and use the receipts to make more loans: the so-called originate-and-distribute model. The development of the market for mortgage-backed securities (MBS) was led by the two major government-sponsored enterprises (GSE), Fannie Mae and Freddie Mac; these institutions were chartered by Congress to promote home ownership, but were owned by private shareholders. The GSEs purchase predominantly fixed-rate mortgages from the lenders after conducting due diligence to ensure that the loans conform to their standards, and then they pool them and sell the resulting MBS. The payments on the underlying mortgage pool are transferred to the MBS holders. Investors who buy the MBS assume the interest rate risk, but the credit risk is usually retained by the GSEs since they guarantee that the investors receive the unpaid principal balance of a mortgage at its maturity or in the event of a refinancing or a default.

The development of a deep and liquid market for MBSs means that mortgage originators greatly reduce their exposure to borrowers and to the underlying collateral. In fact, less than one-third of US mortgages are kept on the books of the originating banks, while more than two-thirds are securitised. In contrast, in most other OECD countries, the share of securitised mortgages rarely exceeds 20% of total outstanding mortgage loans. As documented in a recent ECB report (2008), mortgage securitisation in Europe has remained

Figure 2.2. **Total mortgage originations by type**

StatLink  <http://dx.doi.org/10.1787/487256137301>

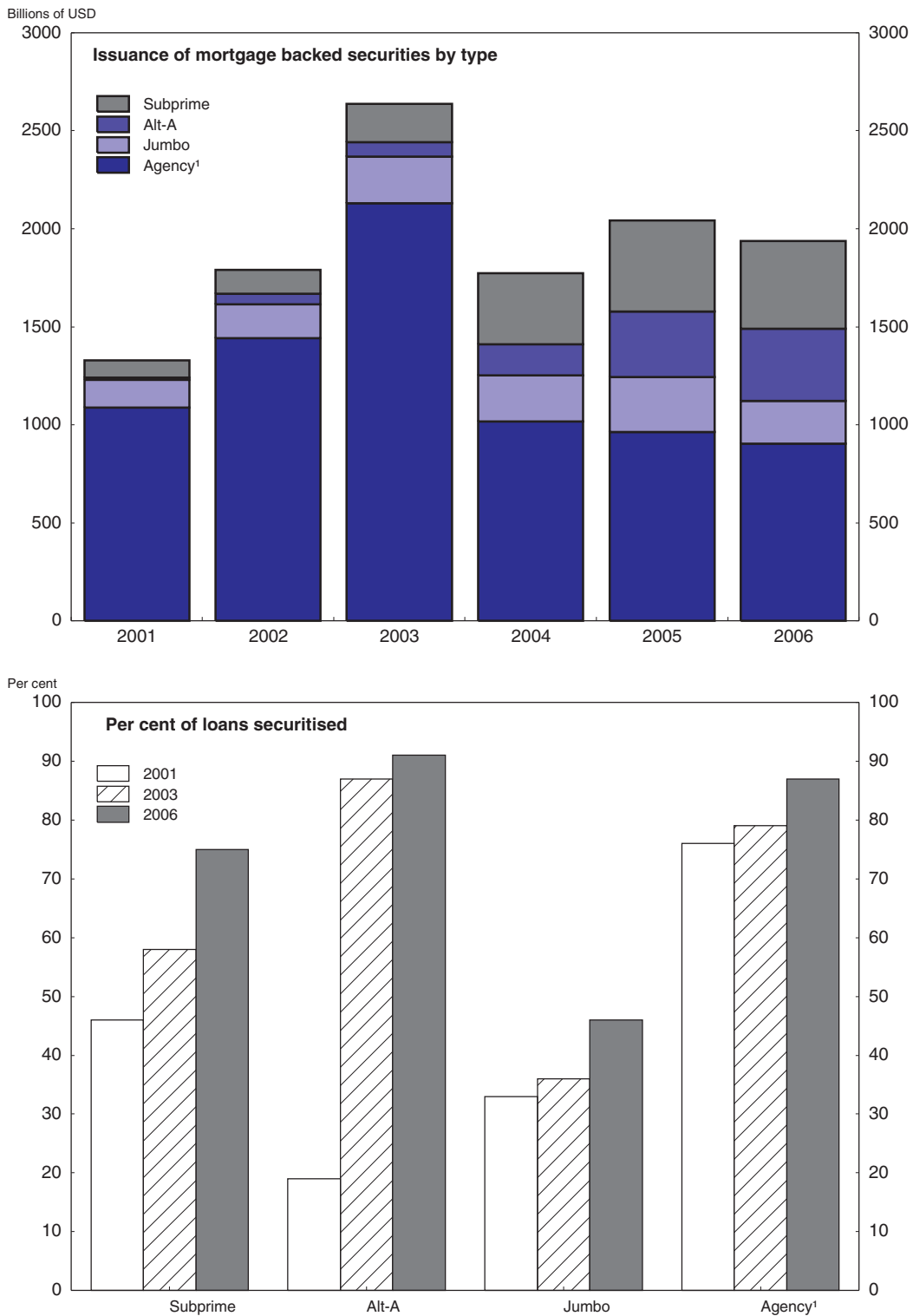
1. Agency mortgages include both GSEs and FHA/VA loans. See Annex 2.A1 for details on the various types of mortgages. HEL stands for home equity lines.

Source: Baily et al. (2008) using Inside Mortgage Finance data.

relatively low, though it has picked up significantly from the negligible levels of the 1990s. At the end 2006, total outstanding MBSs were nearly USD 6.5 trillion in the United States, but only USD 400 billion in the euro area and less than USD 750 billion in the European Union. Even in the United Kingdom, which accounted for about half of European MBS issuance in 2006, less than 20% of residential mortgages are securitised. However, banks in Germany, Denmark and other European countries issue covered bonds, essentially senior bank liabilities which are secured by a mortgage portfolio. Like MBSs, these bonds provide substantial funds for mortgage lending, but they differ from MBSs in that the mortgages remain on the bank's balance sheet and the bond holder can turn to the bank should the cover pool not be sufficient. In any case, even including these covered bonds, securitised loans in Europe would be low by US standards. The state of affairs in Australia and Canada was similar to that in Europe (Ahearne et al., 2005). By 2004, the proportion of outstanding mortgages that had been securitised had grown steadily in Australia but still remained only about 20% in Canada, on the basis of data collected only for the four major banks, the share of securitised mortgages was 17.5%.

While the originate-and-distribute model was fostered by the GSEs, an increasing share of nonconforming mortgages (i.e. those that the GSEs were not allowed to purchase) was financed by so-called private-label MBSs. By the mid of the decade, private-label securitisation had become the main funding source of Alt-A and subprime mortgages. The rise in origination of these lower-rated categories of loans was associated with an even more pronounced shift towards securitisation (Figure 2.3). Issuance of securities backed by

Figure 2.3. **High-risk securitised mortgage lending, 2004-06**



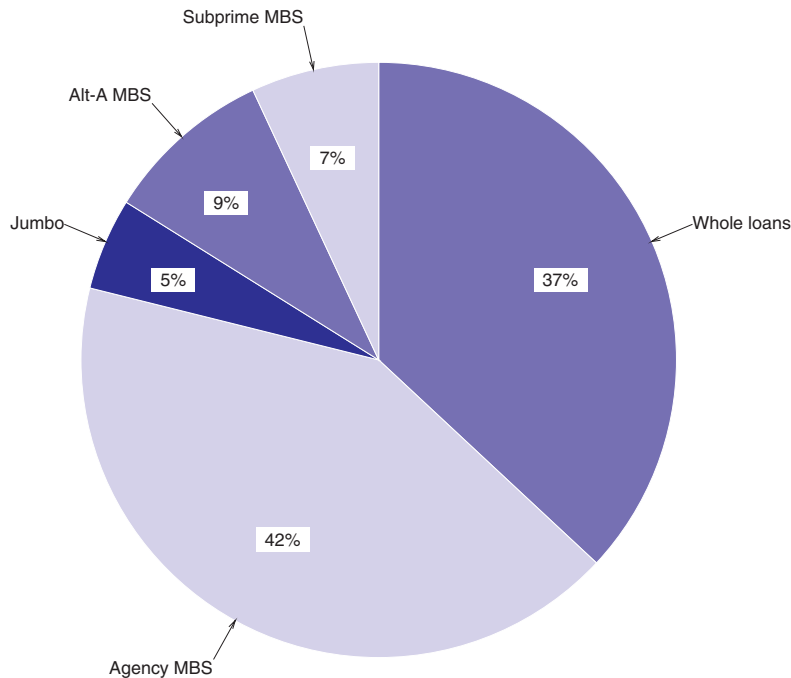
StatLink <http://dx.doi.org/10.1787/487346350226>


1. Agency mortgages include both GSEs and FHA/VA loans.

Source: Ashcraft and Schuermann (2008) using Inside Mortgage Finance data.

Alt-A and subprime mortgages increased from USD 11 billion and USD 87 billion, respectively, in 2001 to USD 366 billion and USD 449 billion in 2006. Over the same period, the share of issuance to origination of these asset classes increased from 40% to 81%. As a result, riskier loans gained important shares in the mortgage market. At the end of 2007, securitised Alt-A and subprime mortgages accounted for 16% of outstanding mortgages (Figure 2.4) and 25% of outstanding MBS.

Figure 2.4. **Outstanding mortgage loans, end 2007**



StatLink  <http://dx.doi.org/10.1787/487465215787>

Source: Deutsche Bank (2008) using Federal Reserve and LoanPerformance data.

A key factor in the development of the market for MBSs was financial innovation, which allowed issuers to generate highly rated securities from the underlying mortgage pool (Box 2.1). As a result of this process, essentially all the risk was supposed to have been concentrated into a relatively small group of low rated securities, which were typically retained by the issuers or sold to investors with a high appetite for risk. The other securities were designed to receive top grades from rating agencies and marketed as safe investments. Freddie Mac and Fannie Mae were among the buyers of the latter. As of March 2007, their portfolios holdings included USD 350 billion of private-label MBS, including USD 170 billion of subprime MBS. These amounts were significantly above their combined minimum capital requirement at the time of about USD 110 billion (according to calculations by the Secretariat).

Over the 2003-06 period, there was also a noticeable increase in the proportion of mortgages with adjustable interest rates (ARM). ARM origination rose from about 10% of the total in 2001 to over 35% in 2004, and remained near this record level thereafter. Such loans were attractive to some borrowers because initial repayments were lower than for

Box 2.1. How subprime mortgages were transformed into AAA-rates securities

Mortgage securitisation can be partly thought of as a financial innovation offering sophisticated investors a diversification tool and the ability to better target their risk/return profile. At its essence, the process entails purchasing the underlying loans from various originators and banding them together. Such diversification, since the mortgages come from different areas, was expected to protect the health of the overall pool from any local shocks and ensure that the payment flows remained stable over time.

For the issuers of mortgage-backed securities (MBS), it is very important that their products receive the highest possible mark by a nationally recognised credit rating agency. Their ratings are supposed to represent an unconditional view of the creditworthiness of the debt instrument. Other things being equal, a higher rating thus means a higher price for the MBSs.

For conforming mortgages, the government-sponsored enterprises (GSEs) and the rating agencies face a relatively easy task. The GSEs only purchase high-quality mortgages and guarantee the timely payment of interest and the eventual payment of principal. Furthermore, the federal government backs all their debt. Thus, not surprisingly, all GSE-issued MBSs carry a credit rating of AAA (the most secure).

For nonconforming mortgages, a substantial share of them is expected to underperform. Furthermore, issuers of private-label MBS are not (implicitly or explicitly) guaranteed by the federal government. Therefore, an asset based on a simple pool of nonconforming mortgages would carry a credit rating below or even well below AAA, since the purchasers take on not only the interest risk but also some of the credit risk. For this reason, private-label MBSs tend to have a complicated capital structure with varying risk and return across a range of products.

In a typical deal, the issuer transfers the receivables of the mortgage pool to a so-called special purpose vehicle (SPV), an off-balance sheet legal entity, which holds the receivables and issues the securities. These securities are then usually separated into senior, mezzanine (junior) and non-investment grade (equity) tranches. Figure 2.5 illustrates the typical capital structure for Alt-A and subprime MBSs. It shows that these securities were structured in a way that attributed the majority of funds to AAA tranches, even though the underlying assets were composed of subprime and Alt-A loans.

A senior tranche has preferred claim on the stream of returns generated by the receivables held by the SPV; once all the senior tranches are paid, the mezzanine holders are paid next; the equity tranche receives whatever is left. This subordination structure is designed to ensure that senior tranches of private-label MBSs are deemed to be very safe. Furthermore, as explained in Ashcraft and Schuermann (2008), SPVs often feature other credit enhancements to protect investors from losses on the underlying mortgage pool. In particular, some portion of the mortgages can go into delinquency, but various forms of protection should mean there is still enough income coming into the pool to keep paying the holders of the senior tranches. The holders of the senior tranche have an asset that is less risky than the underlying pool of mortgages; in fact credit rating agencies were willing to give them the same AAA rating that agency MBSs get. For financial institutions that are required to set aside a certain percentage of capital to support assets, AAA and AA private-label MBSs carry the same (20%) “risk weighting” as agency MBSs. Similarly, asset managers are often allowed to treat senior tranches of even subprime MBSs as a substitute for agency MBSs.

Box 2.1. How subprime mortgages were transformed into AAA-rates securities (cont.)

Figure 2.5. Typical capital structure of Alt-A and subprime mortgage-backed securities



StatLink  <http://dx.doi.org/10.1787/487511731524>

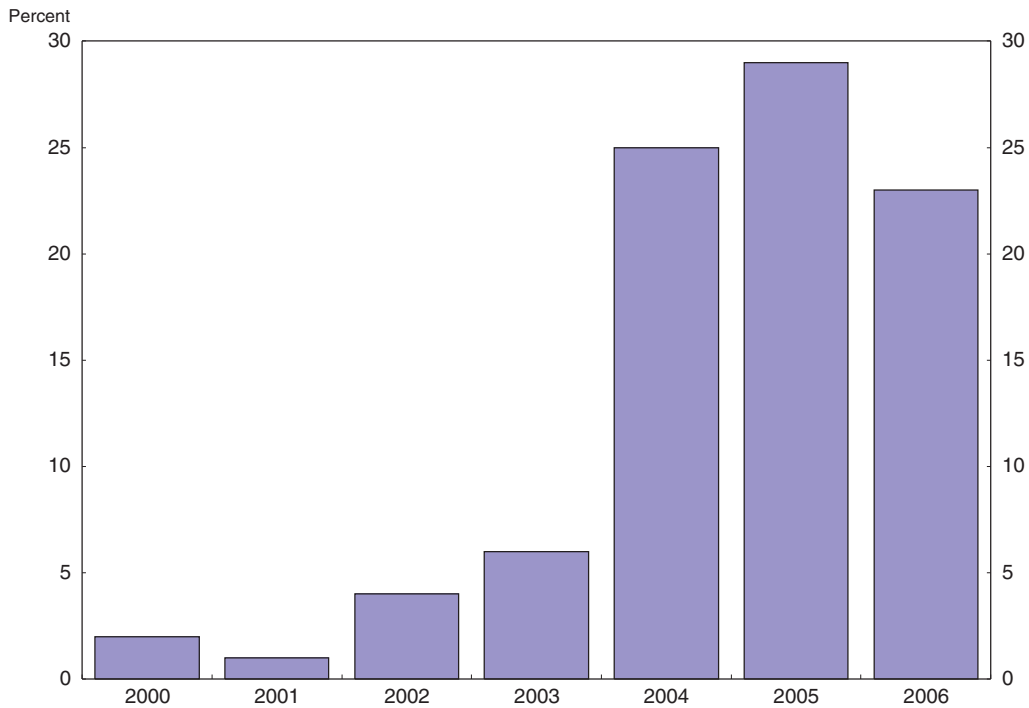
1. Over Collateralisation.


Source: Ashcraft and Schuermann (2008) using data from Bear Stearns.

Given this complicated structure, the various tranches of MBSs are difficult to price. One complication arises from the fact that even the senior tranches are vulnerable to extremely large losses in those rare events when the performance of a considerable share in the pool of underlying assets deteriorates. In other words, the returns distribution of the various tranches is not smooth and, for this reason, MBS are said to be subjected to *cliff effects*. A further concern is the calculation of the default risk on the non-senior tranches, since these tranches tend to be very small. Even if the distribution of the overall underlying assets can be reasonably assessed, the distribution of small sections of tails is going to be extremely difficult to assess.

fixed-rate loans, reflecting the steeply upward-sloping yield curve at this time. While a higher proportion of variable rate mortgages suggest increased vulnerability to higher interest rates, one could argue that if such loans were taken by low-risk borrowers as a prudent debt management/cash flow practice, then they would be not only reasonable, but also desirable. However, in the United States, in 2006 nearly half of the outstanding ARMs were not low-risk, but subprime. Moreover, a rapidly increasing share of Alt-A and subprime mortgages had low teaser rates and even negative amortisation to begin with, making initial repayments particularly low but subsequent payments potentially very high (Figure 2.6). In addition to the prevalence of ARM, the combination of rising loan-to-value

Figure 2.6. **Interest-only and negative amortisation loans: share of total mortgage originations, 2000-06**



StatLink  <http://dx.doi.org/10.1787/487513234721>

Source: Baily et al. (2008) using Crédit Suisse and LoanPerformance data.

ratios and deteriorating underwriting standards left borrowers and lenders very exposed to the risk of lower house prices and weaker economic conditions.

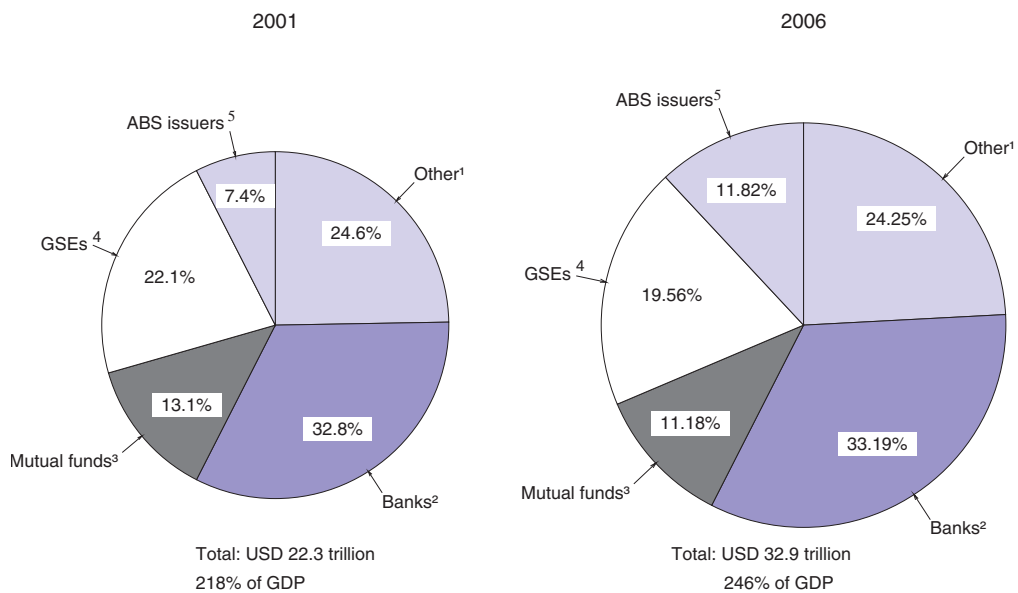
An expanding non-bank financial system


Over time, financial institutions have accumulated an increasing share of riskier assets. In addition, their balance sheets have expanded tremendously, reflecting increasing leverage (Figure 2.7). As risk premia fell, lenders and investors aggressively sought out new opportunities to increase yield, even at the cost of higher risk. Beyond mortgage financing, aspects of this widespread boom included rapid growth in the volumes of private equity deals and the increased use of structured credit products. It should be emphasised that commercial banks and other regulated depository institutions accounted for only half of the increase in the assets of the financial sector. The structure of the financial system changed fundamentally during the boom, with a sharp increase in the share of assets held outside the traditional banking system and the GSEs. This non-traditional financial system, which includes investment banks, hedge funds and other less regulated entities, grew to be very large. Assets held by this parallel system in early 2007 exceeded USD 10 trillion, more than the total assets held by the traditional banking system (Geithner, 2008).

The housing market correction

Over time, as housing became less affordable, demand for housing diminished, resulting in an accumulation of unsold homes. In response to the increasing inventory of

Figure 2.7. Credit assets held by the financial sector



StatLink  <http://dx.doi.org/10.1787/487710667842>

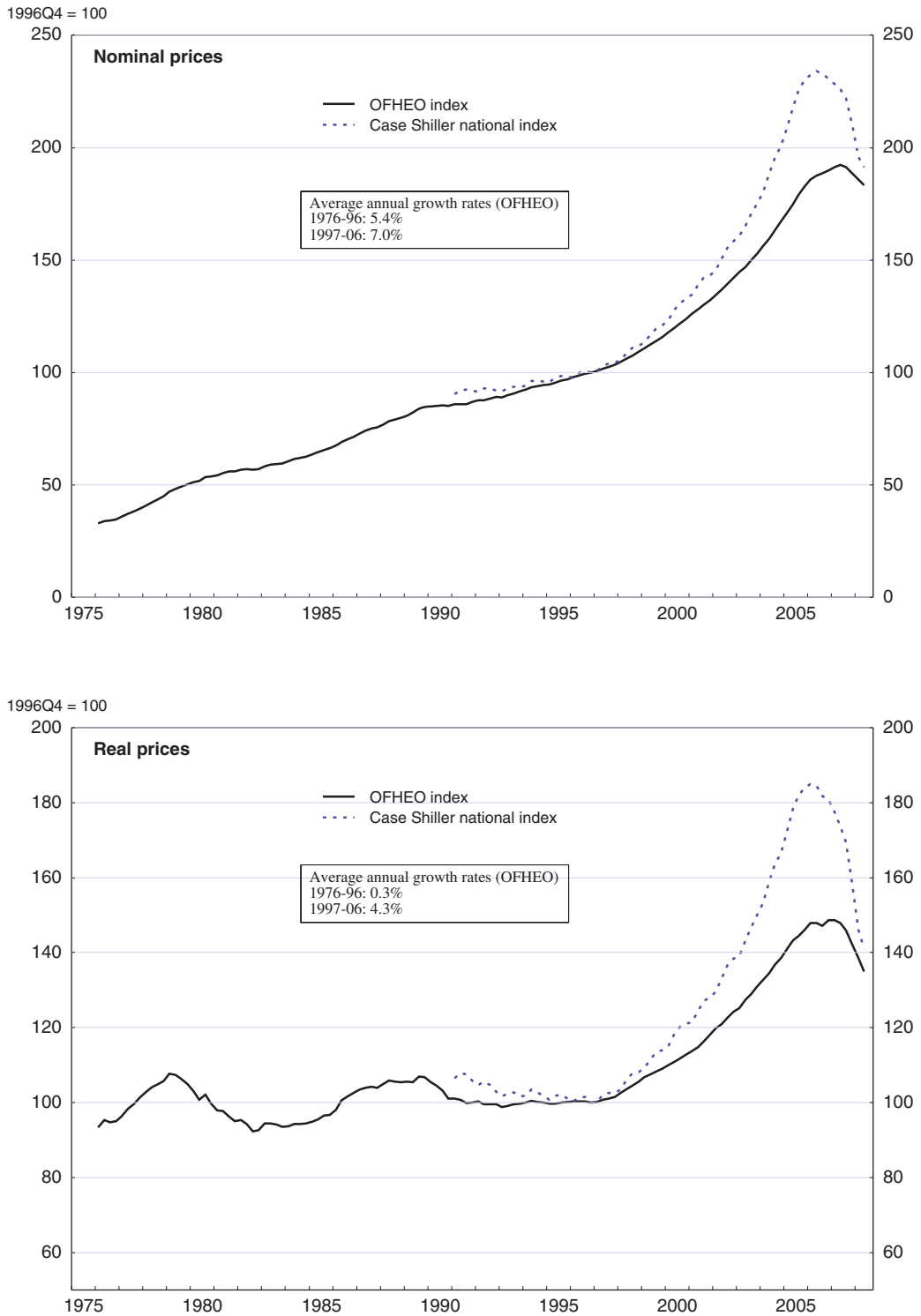
1. Insurance companies, pension funds, and other.
2. Commercial banks, savings institutions, credit unions.
3. Money market mutual funds, mutual funds, closed-end funds, exchange-traded funds.
4. Government-sponsored enterprises, agency-backed mortgage pools.
5. Private issuers of asset-backed securities.

Source: Federal Reserve, Flow of Funds Tables (June 2008).

unsold homes, house prices slowed, starting in mid-2004 in some locations, and then posted outright declines, while residential construction began contracting in early 2006. This adjustment in both prices and quantities was necessary to restore equilibrium in the housing market since, as argued in Chapter 1, prices had almost surely overshot fundamentals and the boom in subprime lending had made possible for too many households to purchase homes beyond their means. As of the third quarter of 2008, real house prices on a nationwide basis (as measured by the OFHEO index) had retreated to their levels at the end of 2005 (Figure 2.8) and the share of residential construction in GDP has nearly halved from the peaks reached in mid-2005.

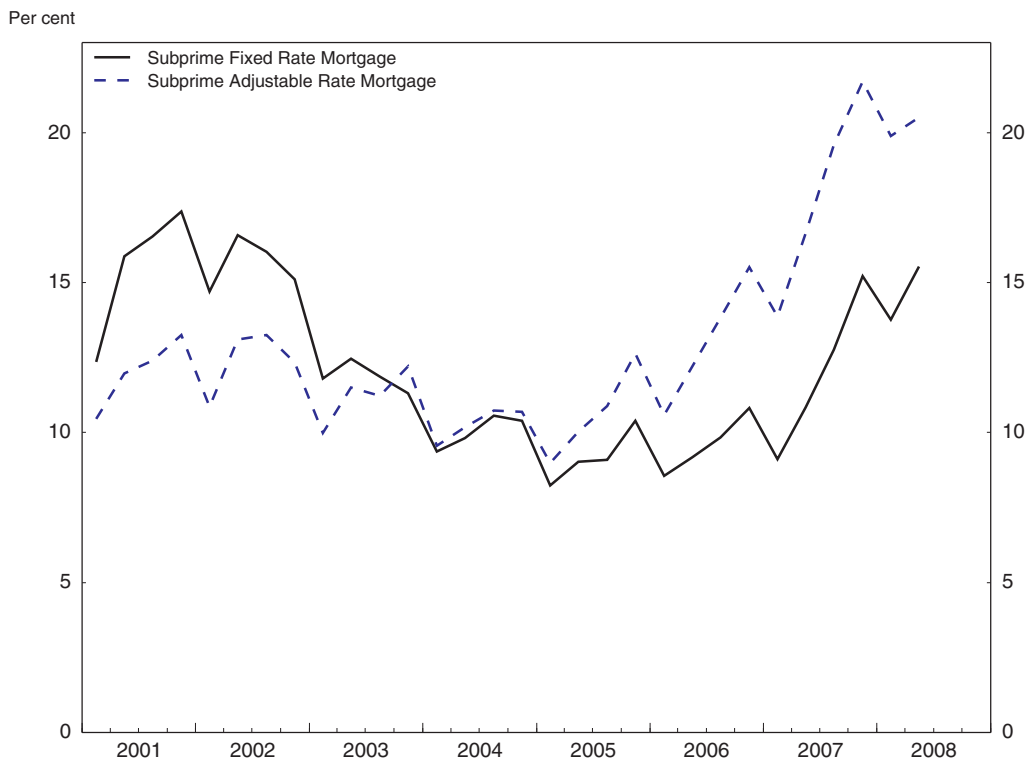
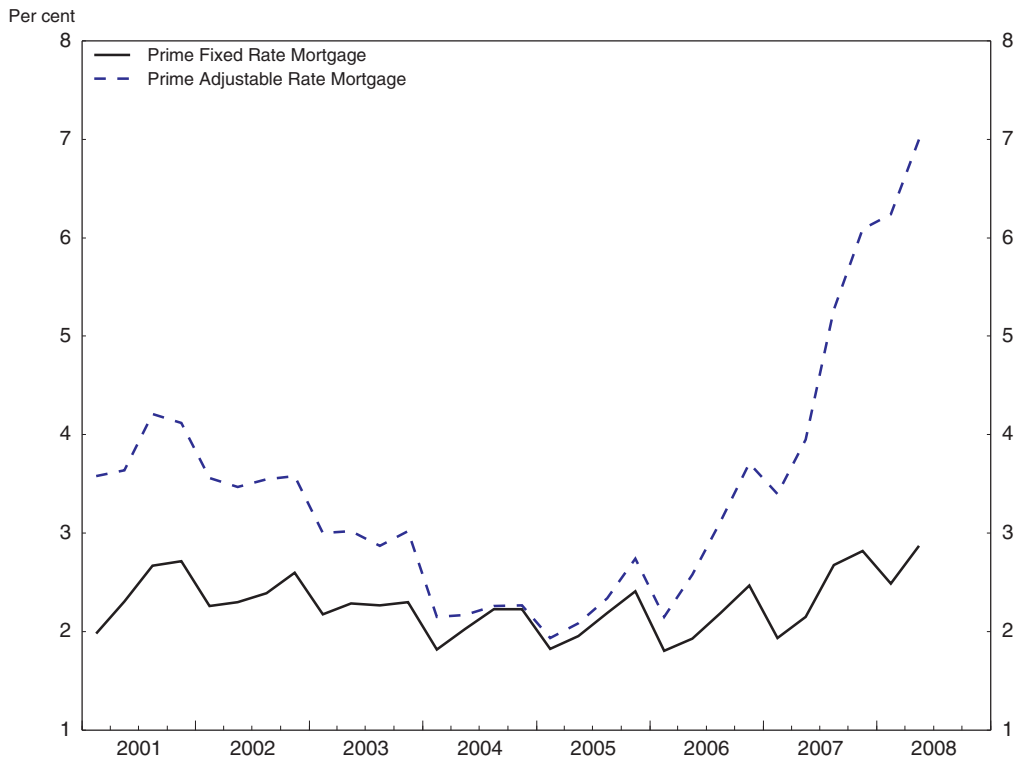
There was a strong relation between house prices and the performance of mortgages. Rising prices allowed borrowers to refinance and avoid any step up in interest rate that had been built into their mortgage contract and also to roll credit card debt into their mortgage with a lower monthly payment. However, delinquencies began to rise towards the end of 2004, well before the crisis hit and immediately after the house prices slowed, (Baily *et al.*, 2008). And not surprisingly, delinquencies were highest in those areas where house appreciation had previously been stronger (Doms *et al.*, 2007). Delinquency rates on subprime adjustable rate mortgages shot up further in early 2007. The performance of other types of mortgages also worsened, perhaps with the sole exception of fixed-rate loans to prime borrowers (Figure 2.9). Higher delinquency rates have led to more foreclosures, which rose from 650 000 in 2005 to 1.3 million in 2007.


Figure 2.8. **House prices**



StatLink  <http://dx.doi.org/10.1787/487742250804>

Source: Office of Federal Housing Enterprise Oversight (OFHEO) and Datastream. OFHEO index is all homes 1976-1990 and purchase-only 1991-2008.

Figure 2.9. **Mortgage delinquency rates**

StatLink  <http://dx.doi.org/10.1787/487746761451>

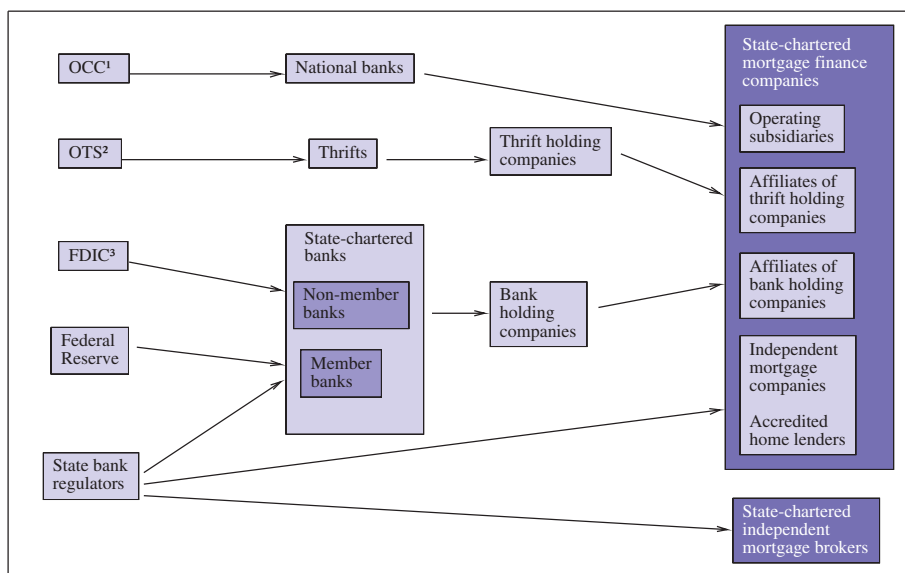
Source: Datastream and the Mortgage Banker Association (MBA) National Delinquency Survey.

Mortgage origination standards deteriorated

Delinquency rates on mortgages since mid-2005 rose steeply. Although the weakening of the housing market contributed to this increase, the key factor was increasingly poor underwriting (Bernanke, 2008a). Mortgage lenders layered multiple risk factors – high cumulated loan-to-value ratios, poor credit histories, low documentation of income and assets – in their underwriting practices. More and more, borrowers reputedly provided false information on incomes and assets, with the complicity of mortgage brokers, and those in the MBS issuance chain – mortgage brokers, issuers, credit rating agencies, underwriters and final investors – did not undertake adequate checks. This lack of diligence, together with originate-and-distribute, meant that mortgage brokers were paid for creating mortgages but did not have to bear the costs associated with possible delinquencies. In addition, the share of new mortgages with interest-only or negative amortisation plans rose from about 5% in 2003 to about 25% in the successive three years. Furthermore, over the same period, the share of Alt-A and subprime loans in MBSs with a silent second mortgage – i.e., not disclosed to the first-mortgage lender at the time of origination – increased from less than 10% to over 30%.

This deterioration in credit standards was facilitated by the absence of a coherent regulatory and consumer protection framework. Mortgage origination is regulated and supervised by a complicated array of federal and state authorities (Figure 2.10). Despite warnings from some sources, none of them was able to stop or mitigate the erosion of lending standards in the mortgage market. The Federal Reserve could have done more to

Figure 2.10. **Existing regulatory and supervisory structure for mortgage origination**



1. Office of the Comptroller of the Currency.

2. Office of Thrift Supervision.

3. Federal Deposit Insurance Corporation.

Source: Treasury (2008a).

Box 2.2. Are mortgage borrowers walking away from their obligations?

It is often claimed that the link between housing prices and foreclosures is reinforced in the United States since most mortgages are “non-recourse” either by law or in practice. This means that, in case of a default, if the value of the collateral is not high enough to cover the outstanding debt, the borrower is not liable for the difference. In other words, a borrower can choose, perhaps because she holds “negative equity” (i.e. the house’s value is less than the amount of mortgage debt), to walk away from her obligations and send the keys back to the lender who would bear the capital losses (so-called “jingle mail”). Therefore, the argument goes, the purchase of a house financed with a high loan-to-value mortgage allowed borrowers to gamble that their properties would appreciate over time without bearing any significant risks. If the argument were correct, this would call for policymakers to allow “deficiency judgements” (i.e., making borrowers personally liable for the unpaid balance of the mortgage when the proceeds of a foreclosure sale are insufficient to satisfy the outstanding debt). However, while this reasoning likely applies to some, this box will argue that the above claim is largely misleading and whether mortgages are non-recourse either by law or in practice will likely have little to do with the rising wave of foreclosure in the United States.

First, it is important to note that almost every state in the United States permits deficiency judgments. Yet, it is true that there are differences across states which can be utilised to attempt identifying the effect of deficiency judgments on mortgage defaults. California, Arizona, Nevada, and Florida provide an insightful case study. California and Arizona forbid deficiency judgments on purchase mortgages – those issued to purchase a property – but it is possible to get a deficiency judgment on refinancing mortgages – those issued to refinance an existing mortgage – in California and on home equity lines in Arizona. By contrast, all mortgages are recourse-loans in Nevada and Florida. In other words, it is much easier to walk away from a mortgage in the former two states than in the latter two. However, all four states have had the most overheated mortgage markets and reportedly the highest incidence of jingle mail. Given that, there does not appear to be strong support for the claim that states that have had the most problem with mortgage defaults are those that are non-recourse to the borrower.

Second, the claim also fails to recognise that for prime investors the cost of defaulting is not trivial because of the consequences of damage to their credit ratings. Furthermore, it is possible that, even if the borrower is currently under water, the option value of continuing to own the house and pay the mortgage may be positive, since it may be reasonable to believe that the house will appreciate in the future. Indeed, empirical evidence from past episodes suggests that homeowners with negative equities in their houses tend not to walk away, when they can afford the mortgage payments. For example, researchers at the Federal Reserve Bank of Boston have documented that during a specific historical episode involving a downturn in housing prices – Massachusetts during the early 1990s – less than 10% of a group of homeowners likely to have had negative equity eventually defaulted on their mortgages. They therefore conclude that “current fears that a large majority of today’s homeowners in negative equity positions will soon ‘walk away’ from their mortgages are probably exaggerated. [...] This result is also, contrary to popular belief, completely consistent with economic theory, which predicts that from the borrower’s perspective, negative equity is a necessary but not a sufficient condition for foreclosure.” (Foote et al., 2008).

Box 2.2. Are mortgage borrowers walking away from their obligations? (cont.)

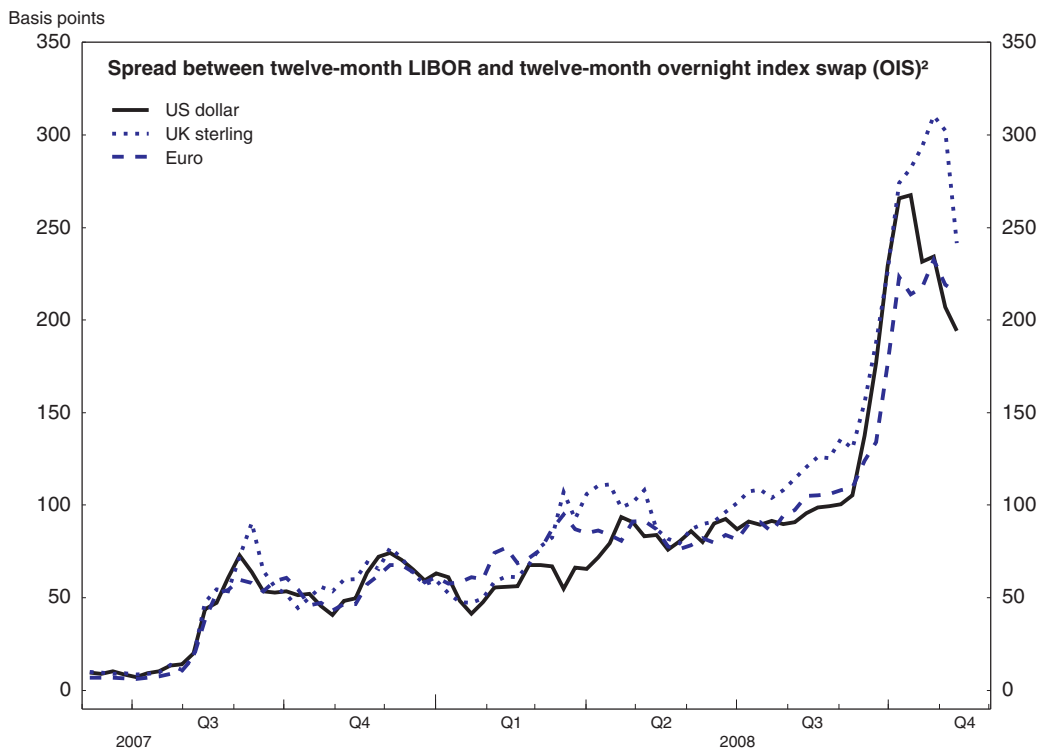
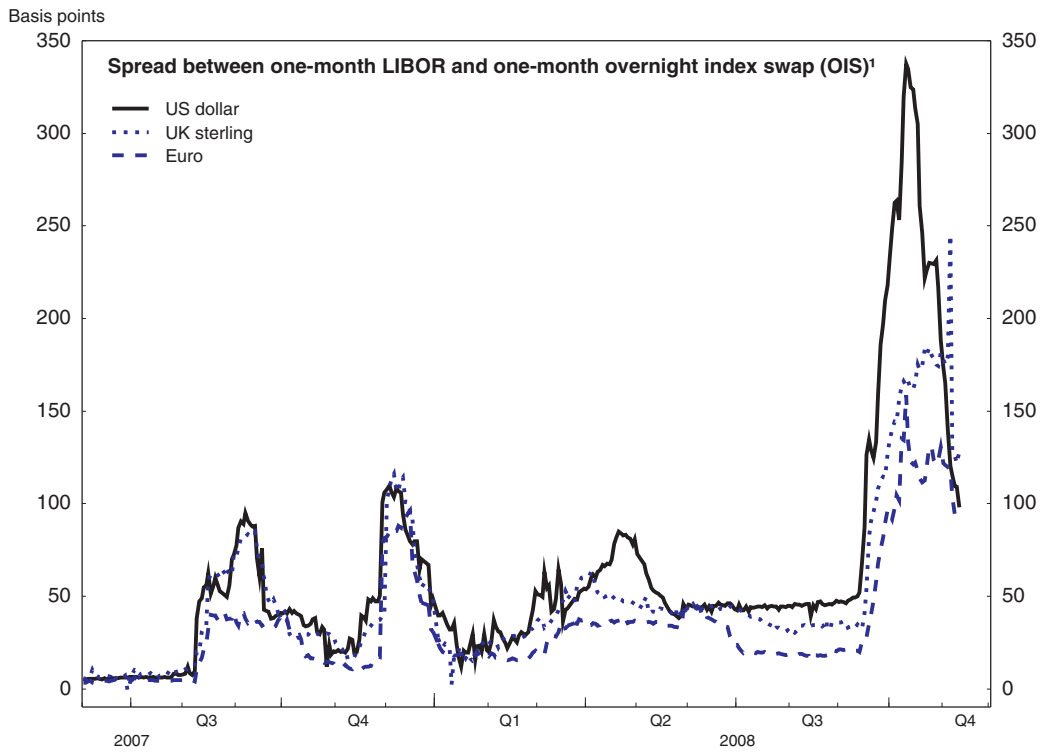
In conclusion, the fact that some borrowers decided “to mail in the keys” does not mean that those who defaulted on their mortgages were trying to game the system. To the contrary, it seems that most of defaulting mortgagors are simply unable to afford the loans and have no other assets. The option of pursuing deficiency judgments probably affects the lenders’ bargaining powers, and thus the amount of concessions (principal and interest rate) that they are willing to grant borrowers, but probably has little effect on the default decision of typical borrowers.

stop the erosion of mortgage lending standards with its admittedly limited powers in this area. In particular, the Home Owner Equity Protection Act (HOEPA) of 1994 gave it the authority to restrict some mortgage offerings. Then Fed governor Edward M. Gramlich warned his colleagues of the decline of lending standards and the dangers that this posed, and proposed changing HOEPA regulation to bring about half of subprime mortgage origination under stricter supervision (Gramlich, 2007a). Furthermore, in 2005, a consumer advisory board, during a regular briefing, brought to the attention of the Federal Reserve’s governors concerns about the problems emerging in the mortgage markets (Baily et al., 2008). Stronger action could perhaps have significantly reduced the amount of bad lending. State regulators also could have done more, since many of the worst lending practices happened in state regulated institutions.

The unfolding of the global financial crisis

The deteriorating performance of subprime mortgages was the main trigger of a global financial crisis, which saw a sudden re-pricing of credit risks, large losses on securitised mortgage loans, a massive drying up of bank liquidity, shortfalls of equity capital in large financial institutions and a series of financial difficulties that are still unfolding. In mid-2007, a handful of hedge funds linked to investment and commercial banks in the United States and in Europe reported that they incurred heavy subprime-related losses. Investors then realised that subprime MBSs were much riskier than supposed, and certainly much riskier than indicated by their credit ratings. Financial firms worldwide were encouraged to question the value of a variety of collateral they had been accepting in their lending operations – and to worry about their own finances. The result was a sudden hoarding of cash and cessation of inter-bank lending, which in turn led to severe liquidity constraints on many financial institutions.

Despite the prompt and aggressive response of many OECD central banks, including the Federal Reserve and the European Central Bank, which injected large amounts of liquidity in the financial system, conditions did not return to normal. The interbank lending market, in particular, came under considerable stress. US commercial bank borrowing exceeds USD 2 trillion and, to retain flexibility, most of this is short term. As a result, if a bank suddenly cannot borrow to roll over its short-term debt, problems arise. Distress in interbank lending market is evident from the behaviour of the London Inter-Bank Offer Rate (LIBOR), which is based on uncollateralised loans between banks, and is a key interest rate used to price various consumer and business loans, including various kinds of mortgages. The tension on the interbank market can be measured by the LIBOR spread, the difference between the three-month fixed-rate LIBOR and the expected interest rate that would accrue from repeatedly rolling over a loan at the overnight federal funds rate for three months, known as an Overnight Indexed Swap or “OIS” (Figure 2.11). The

Figure 2.11. **Interbank market spreads**

StatLink  <http://dx.doi.org/10.1787/487780185084>

1. Daily data.
2. Weekly data.

Source: Bloomberg.

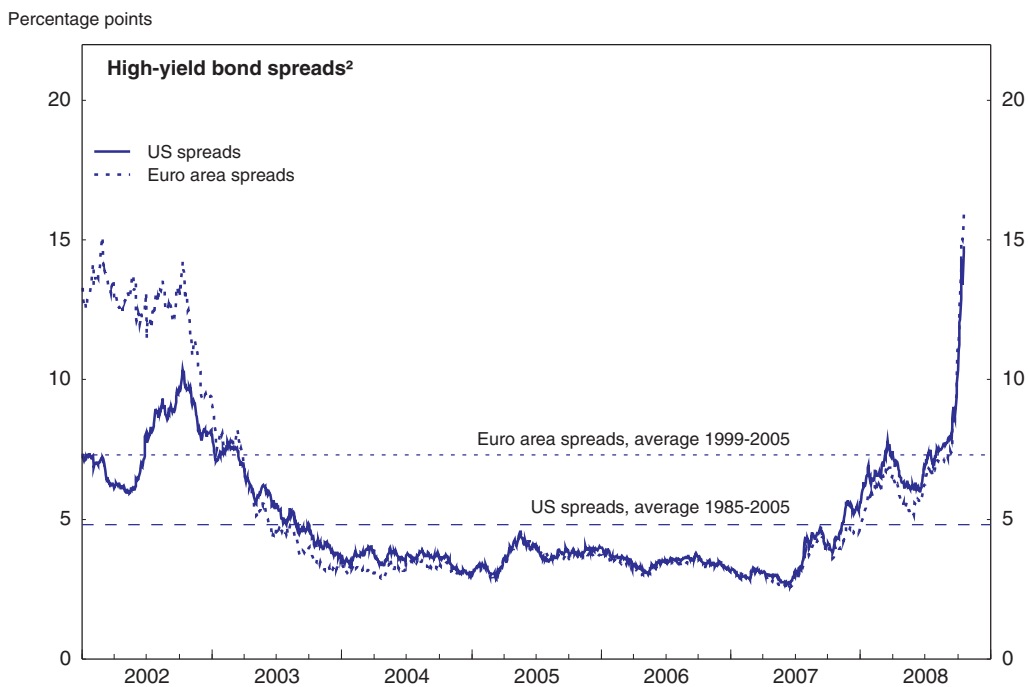
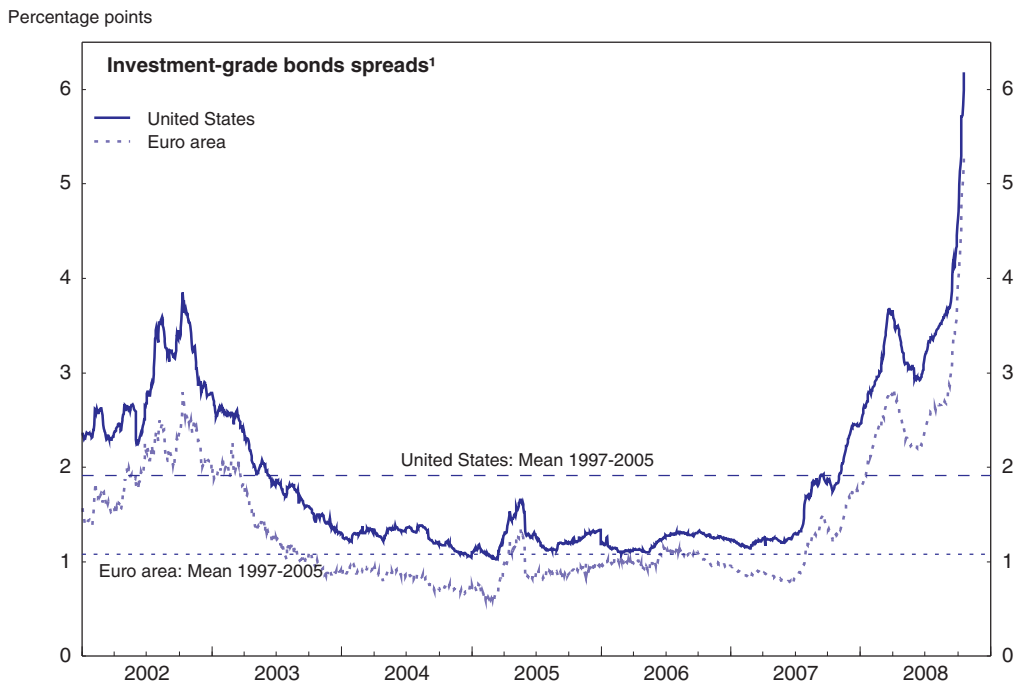
LIBOR spread is typically less than 10 basis points, but on 9 August 2007 it jumped to 40 basis points. Since then, it has remained unusually high and, at times, has fluctuated widely, surging to over 300 points in September and October 2008. These developments clearly indicated that banks believed that there were significant new risks in lending to other banks. Another sign of stress and a second symptom of the financial crisis comes from looking at the average difference between the yields of securities issued by Fannie Mae and Freddie Mac and US Treasury securities of equivalent maturity. In August 2007 this gap doubled from its typical range of 15 to 25 basis points to more than 40 basis points, and, as the crisis later intensified, it surged to more than 100 basis points. Moreover, as market participants adjusted upwards their assessment of risk, spreads increased in many other markets, such as on the market for investment-grade corporate bonds and high-yield bonds (Figure 2.12).


Hence, after affecting the institutions holding large amounts of subprime MBSs, the financial crisis spread to other segments of the financial system over the next year. In late 2007 some monoline insurers, so called because they specialise in the business of credit default insurance for MBSs, posted large losses in relation to their capital. This led to their credit ratings being downgraded, which also reduced the value of the insurance cover they provided, leading to further losses on MBSs. The problems of monoline insurers also caused difficulties in the municipal bond and student loan markets.

In mid-March 2008, a major investment bank, *Bear Stearns*, was pushed to the brink of failure after suddenly losing access to short-term financing markets. A bankruptcy filing would have forced the secured creditors and counterparties of *Bear Stearns* to liquidate the underlying collateral. Given the illiquidity of markets, those creditors and counterparties might well have sustained substantial losses. The US authorities judged that a disorderly failure of *Bear Stearns* would have threatened overall financial stability, and the Federal Reserve provided special financing to facilitate the acquisition of *Bear Stearns* by JPMorgan Chase, a large commercial bank.

In July 2008, the share prices of *Fannie Mae* and *Freddie Mac* dropped sharply as concerns mounted both about their losses and longer-term profitability and about the prospects for earnings dilution given the considerable new capital that they might have to raise. While the two GSEs were not involved directly in the subprime meltdown, their portfolios had substantial holdings of nonconforming and also subprime MBSs, especially relative to the small capital reserves that they were required to hold. In response to these developments, as a supplement to the Treasury's existing limited authority to lend to the GSEs, the Federal Reserve established a temporary arrangement to extend credit to *Fannie Mae* and *Freddie Mac*. Furthermore, Congress enacted legislation temporarily giving Treasury unlimited authority to purchase common stock and debt securities issued by the GSEs. However, these actions failed to restore confidence on the *Fannie Mae* and *Freddie Mac*, and, on 7 September 2008, the Federal Housing Finance Agency, their new single supervisor, put them into conservatorship, essentially taking full control of both enterprises. In addition, Treasury, on the authority recently granted by Congress, made financial support available to the two GSEs. In exchange, the federal government was given an 80% stake in the two enterprises and their top management was replaced; in contrast to bond holders, who were bailed out.

The Federal Deposit Insurance Corporation (FDIC), a government-owned company that provides insurance on deposits in member banks, had to use its receivership powers in July

Figure 2.12. **The rise in bond spreads**

StatLink  <http://dx.doi.org/10.1787/487868046141>

1. Merrill Lynch corporate BBB rated bonds. Spreads based on average yields for 5-7 years and for 7-10 years.
2. Spreads of high-yield bonds (Merrill Lynch indices) over government bond yields (10-year benchmark bonds).

Source: Datastream, Moody's, OECD calculations.

to take over *IndyMac Bank*, largest medium-sized bank headquartered in California, which was on the brink of bankruptcy as credit losses on mortgages has depleted its capital base. In September, the Office of Thrift Supervision seized *Washington Mutual*, the sixth largest commercial bank in the United States, and placed it into the receivership of the FDIC. With USD 307 billion in assets, *Washington Mutual* is the largest commercial bank failure in US history. Furthermore, over the course of 2008, the FDIC had to intervene to rescue several other smaller banks, and it estimated that the combined cost of three operations may put a significant dent into its USD 53 billion federal deposit insurance fund. Finally, the FDIC, together with the Federal Reserve, also played a pivotal role in late September and early October to facilitate the merger between two major banks, *Wells Fargo* and *Wachovia*, in order to prevent the bankruptcy of the latter, which once was the fourth largest US commercial bank.

The month of September witnessed further disruptions. First, *Lehman Brothers*, a major investment bank with more than USD 600 billion in debt, filed for bankruptcy, marking the largest corporate failure in US history. In contrast to what happened with *Bear Stearns*, it appears that the failure of *Lehman Brothers* was unavoidable since no private-sector solution was available and no public-sector solution was feasible, since both the Federal Reserve or the US Treasury reportedly lacked the authority for a rescue operation which would likely resulted into “billions of dollars of expected losses” for the taxpayers (Bernanke, 2008b). The day after the collapse of *Lehman Brothers*, the Federal Reserve extended a USD 85 billion loan to *AIG*, the world’s largest insurance company, in order to prevent what was considered a “disorderly failure [that] would have severely threatened global financial stability and the performance of the US economy” (Bernanke, 2008b). The US authorities judged that *AIG*’s assets adequately secured the loan. Furthermore, in order to protect US taxpayers and to mitigate moral hazard risks, the terms of the credit extended to *AIG* imposed significant costs and constraints on the firm’s owners, managers, and creditors. In November, the government support to *AIG* was raised to about USD 150 billion.

How relatively small credit losses triggered a financial crisis

The unfolding of the crisis since August 2007 has resulted in considerable losses for the financial system. In large part, the size of the losses can be attributed to the fact that the holdings of *MBS* were lightly capitalised. As discussed in Box 2.3, the multiplication of new financial structures permitted an unprecedentedly high degree of leverage to fund *MBS* holdings. Bloomberg estimates suggest that total losses and write-downs related to mortgage-backed assets as at the end of September 2008 were USD 591 billion, of which USD 323 billion were in US banks. It is possible that the above estimate underestimates the actual credit losses incurred by the financial system. Indeed, expanding the estimate to non-mortgage credit and with worse assumptions, a July 2008 estimate raises the losses for US financial institutions alone to USD 3 trillion (Deutsche Bank, 2008b). While even USD 3 trillion may appear relatively small relatively to the size of global or even US financial markets, the key issue is that the incurred losses are not small in comparison to the size of the capital of financial firms and therefore may significantly impair the availability of credit to households and firms as financial firms attempt to reduce their assets in order to repair their balance sheets. This process of re-calibrating the holding of assets to the reduced capital is known as *deleveraging*. Furthermore, it should be recognised that the subprime meltdown triggered what has been called a “*global margin call on virtually*

Box 2.3. Holdings of mortgage-backed securities were financed with highly complex and leveraged structures

Many mortgage-backed securities were funded by other structures called collateralised debt obligations (CDOs), which held Alt-A and subprime mortgage-backed securities (MBS) as collateral. These CDOs were ultimately held by a wide range of investors and financial institutions. And the more recent CDOs were themselves frequently backed by structured securities, resulting in so-called *two-layer securitisations*, in which structured products were used to fund other structured products. These two-layer securitisations are inherently more complex and opaque, and are more exposed to tail risk than their earlier one-layer counterparts. These tail risks generate a distribution of returns on the more senior tranches of two-layer securitisations that has been referred to as *cliff effect* (Joint Forum, 2008). Simply put, the cliff effect refers to the fact that investors of senior tranches of complex securities can expect to receive a small positive return in most circumstances, but they are vulnerable to extremely large losses in those rare events when the performance of a large share in the pool of underlying assets deteriorates.

An additional factor explaining the spreading of losses was that MBSs and CDOs were often sold to special investment vehicles (SIV). SIVs may be thought of as a virtual bank financing their holdings by issuing short-term securities, often commercial paper backed by those same MBS and CDOs, which need to be rolled over constantly. As the market for short-term liquidity dried up and the value of MBSs and CDOs dropped, investors, especially money-market funds, stopped buying paper issued by SIVs. This obliged SIVs either to default or draw on their credit lines with banks. This development exposed banks to SIV risks. In some cases, banks, which had previously sponsored the creation of these SIVs, also took SIV assets back onto their own balance sheets in order to protect their reputations and perhaps avoid lawsuits. SIVs were initially supposed to be separate from the banks that had sponsored them, constituting a “clean break” from a bank’s balance sheet as defined by the Basel II Accord, hence not adding to the banks’ reserve requirements. Indeed, most SIVs were explicitly created to circumvent capital requirements, which would have lowered their ability to leverage and thus lower profitability. It is now however clear that SIVs were not remote from the risk of bankruptcy and that while they generated large profits in the past they are now responsible for part of the losses that the financial system is incurring.

In conclusion, holdings of MBSs were often supported by complex structures, which were highly exposed to tail risks and funded through extreme maturity transformation. With hindsight at least, it should therefore not be surprising that when, unexpectedly, the performance of the assets backing these MBSs sharply deteriorated, these structures collapsed, resulting in large losses for those financial institutions that had sponsored them.

all leveraged positions” (Warsh, 2008). The liquidity crisis suddenly brought an end to the credit boom that preceded it, as a striking loss of confidence in credit ratings and an accompanying revaluation of risks led investors to pull back from a wide range of securities, especially structured credit products. Along the way, the complex and opaque nature of many structured products was revealed and dangerous flaws in the business model of many large financial institutions were exposed.

Investors and credit rating agencies underestimated the risks

In response to the greater financial complexity that developed in recent years, it seems that many investors relied heavily on credit rating agencies to properly evaluate the

new structured securities, rather than demanding information and transparency. In many cases, it seems that they purchased complex instruments knowing little about the underlying assets. Instead, investors took comfort in the diversification inherent in the underlying mortgage pool and in the various credit enhancement techniques applied by to the higher tranches. The belief that the higher tranches were not particularly risky was supported by the high credit ratings. Moreover, in the significant housing market downturns of the late 1970s and the late 1980s, home prices nationwide had slowed significantly, but had not decreased in nominal terms. With nominal home prices having fallen over the past couple of years in many parts of the United States, the credit risk in the pools of mortgage-backed securities turned out to be much more correlated than previously assumed.

In retrospect, however, credit rating agencies (CRA) made major errors of judgement in rating these securities. They did not check the underlying borrower data, assuming that mortgage originators had already done so. The high credit ratings that were awarded on the senior tranches of collateralised debt obligations (CDOs) were overly influenced by the low default rates in the past, when issuance of subprime mortgages occurred less through this securitisation model and there was more restricted access to such mortgages. In other words, the CRAs seem to have overly relied on the fact that housing prices had never fallen nationally and to have ignored the substantial fall in quality of creditors to Alt-A and subprime mortgages. This led the CRAs to underestimate the correlation between defaults in non-prime mortgages (Ashcraft and Schuermann, 2008).

Prudential regulations and investor mandates contributed to the demand for structured products

It was attractive for banks and other large investors (such as pension funds) to invest in the investment grade tranches of structured products because yields were slightly higher than on other highly rated securities, whereas for purposes of risk weightings required by capital adequacy rules for banks (and investment mandates for pension funds) they were treated the same. For example, AAA rated assets are risk-weighted at 25% if they are to be held long term, whether or not they are structured products. Moreover, for banks, structured products could reasonably be held in the trading account, with a view to eventually selling them. These allowed banks to maintain relatively little capital against the holdings, since risk weightings for assets held in trading accounts were low, being based on the results of modelling value at risk, which had been very low up until mid-2007. By contrast, traditional loans and other long-term investments could not reasonably be held in the trading account and so attracted higher risk weightings.

Structured finance was highly profitable

Creating structured products out of mortgage-backed securities (MBS) was highly profitable. The main source of profit came from the senior tranches of structured products because of the high fees investors were willing to pay. Special investment vehicles (SIV) were also profitable because they could use cheap short funding to some extent to finance the MBS on the asset side of their balance sheets. Such off balance sheet intermediation had the advantage for banks of attracting much lower capital requirements than on-balance-sheet intermediation. Remuneration arrangements in banks (both commercial and investment) also encouraged excessive risk taking because managers and traders shared fully in the profits from high-risk strategies but did not fully share in the losses

insofar as they only occurred some years later. The problem is that remuneration arrangements did not claw back past performance-related payouts when they were revealed through subsequent large losses.

Short-term crisis resolution

The spreading of losses through the system and the associated depletion of capital has put several financial institutions under pressure. Most of the losses divulged by financial institutions are based on mark-to-market valuations, rather than actual defaults, and it is highly uncertain how write-downs in an illiquid market will compare with the ultimate losses. In any case, asset write-downs imply a sharp depletion of regulatory capital. In addition, another important source of funding and balance sheet pressure was that mortgage lenders ended up having to fund a sizeable volume of loans that had been intended for securitisation or off-balance sheet funding. In response, financial institutions have raised fresh capital, but additional losses announced on a recurrent basis have made the process of raising capital increasingly more difficult. In the second half 2008, the crisis spread to regional banks which, in contrast to the larger financial institutions, had remained relatively immune to the stress in financial markets. These banks have relatively high exposures to home equity loans and especially commercial mortgages, both of which have shown some signs of difficulties lately and are to a greater extent held on the originators' books rather than being securitised. Given that raising new capital may be expensive and difficult in current circumstances, a significant amount of deleveraging, i.e., reduction of debt though the rapid sales of assets, is to be expected. This will weigh on lending growth and could even result in a credit crunch. Thus, authorities are likely to face further tough challenges. In this section, short-term policy responses are discussed to: i) facilitate an orderly adjustment of the housing market; ii) resolve the drying-up of liquidity in the interbank market; and iii) deal with the risk of bankruptcy of financial institutions.

Coping with the wave of house foreclosures

The number of house foreclosure started to increase in 2007 and is likely to remain high into 2009, reflecting the decline in house prices, which put a growing number of borrowers "under water", i.e. pushed them into a position of negative equity in their house. (While, as previously discussed in Box 2.2, it appears unlikely that most borrowers with negative equity will default on their mortgages as long as they can afford it, the lack of refinancing opportunity in combination with rapidly deteriorating labour market conditions is expected to result in many additional foreclosures). The wave of foreclosures adds to the inventory of unsold homes and, in turn, puts house prices under negative pressure, which weakens banks' asset position still further. The result could be a downward spiral and additional recessionary pressures. Yet, price declines appear to be a necessary part of the market adjustment as the bubble deflates. Thus, measures sufficient to prevent avoidable foreclosures and facilitate orderly loan reductions, but not so large as to prevent needed adjustment, are the focus of the planned actions by the Administration and Congress.

The authorities have taken a number of steps to encourage voluntary agreements between lenders and distressed borrowers. Most notably, public funds have been made available to support mortgage counselling, which has been successful in the past (Gramlich, 2007b). The Administration also brokered a voluntary agreement, the "HOPE NOW" alliance, between mortgage servicers and other industry participants to put some adjustable-rate mortgage borrowers on a "fast track" to modifications that would maintain the initial low

mortgage interest rate for five more years. Further measures should be considered to encourage orderly loan workouts, notably to facilitate the restructuring of an existing mortgage when a homeowner owns a house that is affordable but has a wrong mortgage.

However, significant legal impediments stand in the way of voluntary loan restructuring. In many cases, the ability to help distressed borrowers first requires coordination and agreement between the holders of the first and second mortgages. For instance, to avoid the costly foreclosure process, the first-mortgage holder may have an interest in reducing the payment obligation of the borrower. Since the priority of mortgages generally follows the order in which they were recorded, the second mortgage must be re-subordinated (or repaid in full) to the new first mortgage. The second-mortgage holder, however, may withhold her consent to re-subordination to bargain with both the homeowner and the first-mortgage holder. One contribution that policymakers can make is to help design a standard package for restructuring mortgages that indicates, among other things, how to distribute losses among first- and second-mortgage holders. Such a package, even if it does not involve any federal funding, could be useful by reducing the number of decisions that need to be made in a loan restructuring, speeding up the process, and by helping to gain assent from second-mortgage holders. In any case, policy makers should be careful not to distort incentives excessively and should be aware that undue pressure on second mortgage-holders will ultimately raise interest rates on future credit transactions and thereby harm future borrowers.

In the last quarter of 2007, the Administration launched a new programme called “FHASecure” authorising the Federal Housing Administration (FHA) to guarantee refinancing to adjustable-rate borrowers who are delinquent on their payments due to an interest-rate reset and who had been timely on their payments for the six months prior to the reset. This initiative has been generally praised for its cost effectiveness and the US authorities estimate that it has helped nearly 300 000 households to refinance over period up to August 2008. Furthermore, along with the legislation enacted in July 2008 to support Fannie Mae and Freddie Mac, Congress has enacted a new “Hope for Homeowners” initiative which has expanded the eligibility for FHA-guaranteed loans in order to help more households refinance their mortgages when they have negative equity in their homes. The measure has several merits. First, it provides an effective incentive for lenders to reduce principal amounts 10% below the currently appraised values. Second, it is designed to restrict eligibility to those borrowers who are owner-occupiers and satisfy solid underwriting standards. This should ensure that the new loans can be guaranteed at relatively low cost to taxpayers. Third, it limits the risk to taxpayers and possible budgetary transfers as it requires that borrowers have to pay for the FHA insurance and have to share equally with the FHA the new equity and any future appreciation. Nonetheless, the legislation may involve larger public funds than planned as, for example, plans to impose a fee on the government-sponsored enterprises to cover some of the costs may turn out to be unfeasible. Furthermore, while the legislation is carefully designed, it is also complex and its implementation is likely to be difficult. For instance, it is not clear that mortgage servicers have the financial incentives and are properly staffed to handle the wave of bad loans. Last the legislation is in essence a large-scale scheme to bail out distressed borrowers, and as such it may generate undesirable moral hazard problems.

In November 2008, the US authorities announced a new plan allowing qualified mortgage borrowers to get reduced interest rates or longer loan terms to make their payments more affordable. To qualify, borrowers have to be at least three months behind

on their mortgages and have to owe 90% or more than the home is worth. Investors who do not occupy their homes are excluded, as well as borrowers who have filed for bankruptcy. The plan establishes a streamlined modification programme, which requires less documentation and less processing. More specifically, the streamlined modification seeks to create a monthly mortgage payment that is sustainable for troubled borrowers by targeting a 38% benchmark ratio of housing payment to monthly gross household income. While the plan is clearly a step in the right direction, some observers, including FDIC chair Sheila Blair, are sceptical whether it will deliver a much needed wide-scale modifications of distressed mortgages. Since the plan applies only to loans that Fannie Mae and Freddie Mac own or guarantee, the effected mortgages represent only 20% of outstanding delinquent loans. Hence, for the plan to effectively contain the mounting wave of foreclosures, other industry participants, including portfolio lenders and representatives of private label security investors, ought to readily and rapidly adopt the streamlined modification programme as the industry standard.

The Federal Reserve's interventions to support market liquidity and stabilise financial market conditions

In addition to aggressive cuts in interest rates (Chapter 1), the Federal Reserve took a number of unprecedented steps to provide liquidity. Notably, it has introduced several new liquidity facilities since December 2007 (Box 2.4). The two auction facilities, the Term

Box 2.4. The Federal Reserve's new liquidity operations

For depository institutions (commercial banks), the Term Auction Facility (TAF) was launched in December 2007. This is a complement to the Primary Credit Facility, often referred to as the Discount Window (DW). In the TAF, short-term loans are auctioned by the Federal Reserve currently on a weekly basis in single-price auctions. Any sound depository institution with suitable collateral can participate. In order to protect the taxpayers, only depository institutions that are sound and are expected to remain sound for the term of the loan are allowed to participate. A summary of the terms of the two facilities available to depository institutions – the TAF and the DW – are shown in Table 2.1. Furthermore, in September 2008, a more limited forward TAF auction programme was introduced to assure market participants that term funding will be available over year-end. At the time of writing, two auctions were scheduled to take place in November for a total of USD 150 billion.

Table 2.1. Terms of credit facilities for depository institutions

Terms auction facility (TAF)
<ul style="list-style-type: none"> • Fixed quantity (USD 300 billion at the time of writing), rate determined by auction • Minimum rate, single price auction • Single price auction • 28-day or 84-day maturity
Discount window (DW)
<ul style="list-style-type: none"> • No quantity limit • At fixed spread to overnight federal funds rate target • Up to 90 day term, can be pre-paid

Source: Federal Reserve Bank of New York.

Box 2.4. The Federal Reserve's new liquidity operations (cont.)

For primary dealers, two new facilities were introduced – the Term Securities Lending Facility (TSLF) and the Primary Dealer Credit Facility (PDCF). The terms for these two facilities are shown in Table 2.2. These can be thought of as analogues to the TAF and the PCF for depository institutions. The TSLF auctions the right for primary dealers to exchange agency securities, AAA-rated mortgage-backed securities (MBS), or AAA-asset-backed securities (ABS) collateral in exchange for Treasury securities. The dealers take the Treasury securities obtained in the auction and use them as collateral to obtain cash in the Treasury repo market. The bid price is in basis points. The spread between the one-month Treasury repo rate and the one-month term repo rate on the AAA-rated collateral is the metric that drives the price dealers are willing to bid to swap AAA-rated collateral for Treasuries. In July 2008, the TSLF was expanded to offer primary dealers options which, if exercised, would allow primary dealers to borrow additional Treasury securities for two weeks or less surrounding key financing dates. At the time of writing, USD 50 billion are offered every month in the so-called Term Securities Lending Facility Option Program (TOP). The PDCF is a standby borrowing facility for primary dealers, akin to the DW. But there are a number of important differences. First, the PDCF, like the TSLF, is built to utilise the infrastructure of the tri-party repo system managed by two major clearing banks – Bank of New York Mellon and JP Morgan Chase. In contrast, the DW is administered by the twelve Federal Reserve Banks through the discount window function. Second, the scope of eligible collateral is a bit narrower – confined to most major types of investment grade securities. In contrast, the discount window accepts a broader set of collateral, including certain types of whole loans. Third, the PDCF is a temporary facility that must, by law, disappear once market conditions normalise.

Table 2.2. Terms of credit facilities for primary dealers

Terms securities lending facility (TSLF)
<ul style="list-style-type: none"> • Fixed quantity (USD 200 billion at the time of writing), rate determined by auction • Minimum rate, single price auction • Collateral – OMO1+ all collateral eligible for tri-party repurchase agreements, and for schedule 2 also investment-grade corporate securities, municipal securities, MBS2 and ABS3 • 28-day maturity
Primary dealer credit facility (PDCF)
<ul style="list-style-type: none"> • Overnight maturity, no quantity limit • At fixed spread to overnight federal funds rate target • Collateral – OMO1 + Investment grade securities • Backend fee for persistent usage

Note: Both TSLF and PDCF use tri-party repurchase facilities of two major clearing banks.

1. Open market operations (OMO).
2. Mortgage-backed securities (MBS).
3. Asset-backed securities (ABS).

Source: Federal Reserve Bank of New York.

In addition to the TAF, TSLF, TOP and PDCF, the Federal Reserve has undertaken other initiatives to support liquidity and the flow of credit. First, the Federal Reserve has entered into temporary foreign exchange swaps with the European Central Bank, the Swiss National Bank, the Bank of Japan, the Bank of England and several other central banks of OECD and non-OECD economies. These central banks disseminate the US dollars obtained through these swaps, contributing to improve liquidity conditions in global financial markets. Second, the Federal Reserve has conducted a series of 28-day term single-tranche

Box 2.4. The Federal Reserve's new liquidity operations (cont.)

open market repo operations. Theoretically, these term repos can provide funding against any open market operation eligible collateral – that is, Treasuries, Agencies, or Agency mortgage-backed securities. In practice, the single tranche operations are used predominately to finance Agency MBS debt because it is typically more expensive to finance than Treasury or Agency debt in the marketplace. Third, two additional facilities were created to support the market for commercial paper which came under considerable stress in September 2008. The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) was established to finance the purchases of high-quality asset-backed commercial paper (ABCP) by US financial institutions from money market mutual funds. The AMLF is intended to assist money funds that hold such paper in meeting demands for redemptions by investors and to foster liquidity in the ABCP market and money markets more generally. The Commercial Paper Funding Facility (CPFF) was set up to provide a liquidity backstop to US issuers of commercial paper. The CPFF is intended to improve liquidity in short-term funding markets and thereby contribute to greater availability of credit for firms. More specifically, the CPFF provides funds for the purchase of highly-rated unsecured and asset-backed three-month commercial paper from eligible issuers via eligible primary dealers. At the time of writing, the Federal Reserve has committed over USD 300 billion to finance the commercial paper market through the AMLF and the CPFF. Fourth, the Money Market Investor Funding Facility (MMIFF) was established to support a private-sector initiative designed to provide liquidity to US money market investors. The goal of this initiative is to support the market for short-term liquidity since, late in 2008, money market mutual funds and other investors had been increasing their liquidity positions by investing in shorter-term (frequently overnight) assets. The MMIFF provides senior secured funding to a series of special purpose vehicles to facilitate an industry-supported private-sector initiative to finance the purchase of eligible assets from eligible investors.

Auction Facility (TAF) and the Term Securities Lending Facility (TSLF), were devised to efficiently provide liquidity support to depository institutions and primary dealers, respectively. They provide several advantages relative to the traditional discount window (DW). First, they are dynamic – the results shift from auction to auction – and the information obtained through the auction process facilitates price discovery and helps policymakers assess market conditions and sentiment. Second, the auctions appear to have resolved the “stigma” problem since funds are not available immediately, making these facilities a poor source of funding for an entity that is in desperate shape. (Stigma is the word used to describe the unwillingness to use a liquidity facility because of fears that such use could send an adverse signal about the health and viability of the borrower.) Another advantage of auctions is that they do not create uncertainty about the amount of liquidity provided making it easier to target the federal funds rate. The Primary Dealer Credit Facility (PDCF), on the other hand, is a standby facility, akin to the DW, designed to provide reassurance to market participants that sound primary dealers have access to backstop sources of liquidity. But the actual amount of funds advanced through these facilities is likely to be limited in most circumstances. In the second half of 2008, as the financial crisis intensified, the Federal Reserve further expanded the set of liquidity facilities. First, it greatly expanded the currency swap agreements (which were first set up in December 2007) with a number of foreign central banks in order to alleviate the demand

for US dollars in the global financial markets. Second, it established a series of new facilities to support the markets for commercial paper and money market mutual funds.

A key question is whether the new lending facilities have improved the functioning of the interbank market. The LIBOR spread has remained elevated, although the launch of each facility was associated with a narrowing. A recent study found no evidence that the TAF auctions have had a statistically significant effect on term funding (Taylor and Williams, 2008), but its finding can be reversed with minor specification changes (McAndrews *et al.*, 2008). The TSLF has been less controversial since it clearly provided liquidity to institutions that needed it. Furthermore, a second goal of the TSLF was to reduce the premium paid to hold mortgage-backed securities relative to Treasuries, and, also on this count, it seems to have been effective (Fleming *et al.*, 2008.).

Perhaps, scepticism towards the auction facilities arises from the fact that they were initially intended to change the composition of the Federal Reserve's assets while leaving the quantity unaffected. A widespread belief, built on past experiences, has been that changes in the composition of the Fed's assets have little or no real effect. But late in 2007, Federal Reserve's officials became aware that while well established mechanisms existed for injecting reserves into the financial system, officials had no way to guarantee that the reserves would reach the banks that needed them. In the United States, standard open market operations put reserves into the hands of a small number of primary dealers, but this does not mean that the funds will then be distributed across the banking system. The TAF was designed to ease this problem, helping specific institutions having liquidity problems mainly by extending out the maturity spectrum (Cecchetti, 2008).

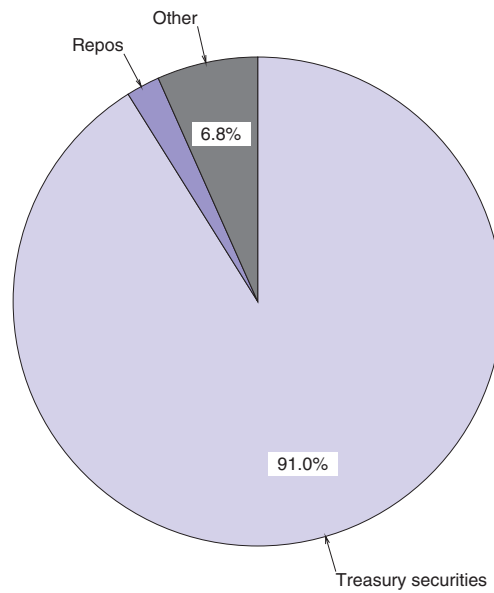
The decision to extend backstop facility to primary dealers through the PDCF has generated greater debate. Following the near bankruptcy of Bear Stearns, which was subject to a sudden "run" from its creditors, it became clear that short-term funding that characterises lender-of-last-resort operations should be extended beyond commercial banks, at least when financial markets are not functioning normally. Furthermore, the PDCF, like the TSLF, helped reducing the interest-rate spreads between the asset-backed securities and Treasury securities, thereby improving the ability of investors to buy and sell asset-backed securities in financial markets.

In the second half of 2008, the Federal Reserve more than doubled its balance sheet in an effort to support the flow of credit to households and firms after financial market came to a near halt during the month of September (Figure 2.13). At the time of writing, it remains unclear whether these actions will successfully avert a crunch on credit and a severe recession of the US economy. In particular, the use of new and unorthodox tools may have unintended consequences, as every time the Federal Reserve elevates one class of debt it risks displacing another. Furthermore, according to some critics, the Federal Reserve is taking collateral at a price which is too low and thereby is exposing US taxpayers to substantial risks. While such claims seem to be well founded only for the loans to Bear Stearns and AIG, the Federal Reserve could be more transparent and thus re-assure observers that it is not providing a hidden subsidy to the financial system.

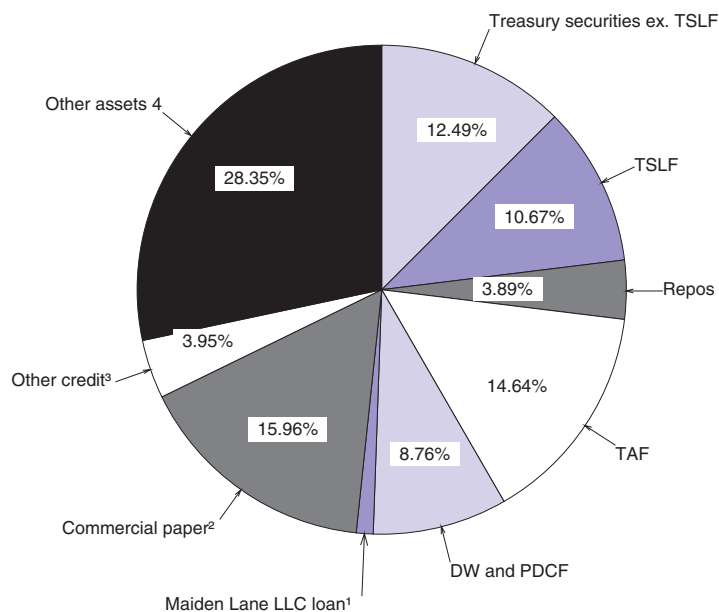
The full ramifications of these actions by the Federal Reserve are still unknown, although they appear to have staved off further instability in the financial system and provided additional liquidity. However, the extension of the public safety net to primary dealers, which now seems necessary to reduce the risk of runs by creditors and will be difficult to withdraw, has rendered market discipline less effective. As a result, actions

Figure 2.13. **Federal Reserve assets**

August 8, 2007, Total: USD 869 billion



November 5, 2008, Total: USD 2 058 billion

StatLink  <http://dx.doi.org/10.1787/487885525827>

1. Loan extended to acquire certain assets from Bear Stearns.
2. Asset-backed commercial paper money market mutual fund liquidity facility and net portfolio holding of Commercial Paper Funding Facility LLC.
3. Other credit includes loan to AIG.
4. Other asset includes currency swaps with foreign central banks.

Source: Board of Governors of the Federal Reserve.

should be taken immediately, even within the current legal framework, to curb the increase in moral hazard. The Federal Reserve should push primary dealers, in return for access to its lending facilities, to strengthen their balance sheets, their liquidity and their risk-management practices. In the longer term, as discussed in the next section, a more durable solution should be implemented.

Recapitalising the banking sector

Deleveraging in the banking sector poses the greatest risk to the growth prospects of the US economy, because it could trigger a credit crunch as banks reduce assets to bring them back into line with capital targets. An alternative, of course, is more capital. A first approach to recapitalisation was to allow banks to earn back their losses. The low federal funds rate improves bank margins and thus boosts their profit. But even rates at the current 1% are not low enough, given the losses that banks are likely to incur (Blundell-Wignall, 2008). Furthermore, banks should cut their dividends and raise new capital from the private sector in order to more swiftly repair their balance sheets. However, as the economic situation deteriorated severely during the second half of 2008, more drastic action was required. The US authorities responded quickly to the turn of events. As discussed above, the Federal Reserve set up new liquidity facilities for banks, money funds and commercial paper issuers. Furthermore, the Federal Deposit Insurance Corporation (FDIC) expanded deposit insurance and guarantees new senior unsecured debt of depository institutions and certain financial holding companies. The FDIC should be quickly recapitalised if necessary. Finally, Congress enacted the Emergency Economic Stabilization Act of 2008 providing much needed resources for dealing with the financial crisis and for supporting the US economy. Above all, the Troubled Assets Relief Program (TARP) authorises the Department of Treasury to draw up to USD 700 billion, of which USD 250 billion have been already directed towards the critical task of recapitalising banks. At the time of writing, it is still unclear how Treasury will make use of the rest of the TARP funds. Plans to purchase illiquid assets from financial institutions have been, at least for moment, put to the side. The new strategy is focused on injecting further capital in financial institutions as well as supporting consumer financing (Paulson, 2008). It is essential that the financial rescue package is rapidly and effectively implemented.

Box 2.5. Policy recommendations to contain the disruptions caused by the financial crisis

Measures to facilitate an orderly adjustment of the housing market

- Measures to encourage voluntary agreements between lenders and distressed borrowers to prevent foreclosures are welcome. While it is essential that the necessary correction in the housing market moves forward as quickly as possible and that existing loans agreements are not modified by the legislator, actions should be taken to avoid preventable foreclosures to reduce the risk a downward spiral in housing prices. The streamlined modification programme for mortgages that Fannie Mae and Freddie Mac own or guarantee should become a standard for other industry participants.
- Ensure that the measures enacted in July to foster voluntary mortgage write-downs by directing the Federal Housing Administration (FHA) to guarantee qualifying new mortgages are strictly implemented. While lenders should take significant losses as new loans are supposed to be at a 90% discount to current appraised values, borrowers

Box 2.5. Policy recommendations to contain the disruptions caused by the financial crisis (cont.)

should be able to repay the new loans, and also share their new equity and future appreciation equally with the FHA.

Short-term measures to overcome the financial crisis

The US authorities have responded aggressively to the unfolding of events by implementing various initiatives to contain disruptions in the financial system while allowing the adjustment process to proceed as orderly as possible. In addition:

- It is essential that the Troubled Assets Relief Program is swiftly and effectively implemented.
- In case the banking crisis should spread further, the Federal Deposit Insurance Corporation should be recapitalised.

Longer-term crisis prevention

The previous two sections of the chapter examined the origins and the unfolding of the crisis, and presented immediate policy measures needed to deal with the short-term challenges. This final section addresses the structural flaws in the financial system the crisis has revealed. As events unfolded, systemically important financial institutions took on much greater risks than they could bear. The failures of regulatory oversight and market discipline underscore the need to find ways to make the financial system more resilient and stable.

There are fundamental problems with the current “functional” approach to financial regulation

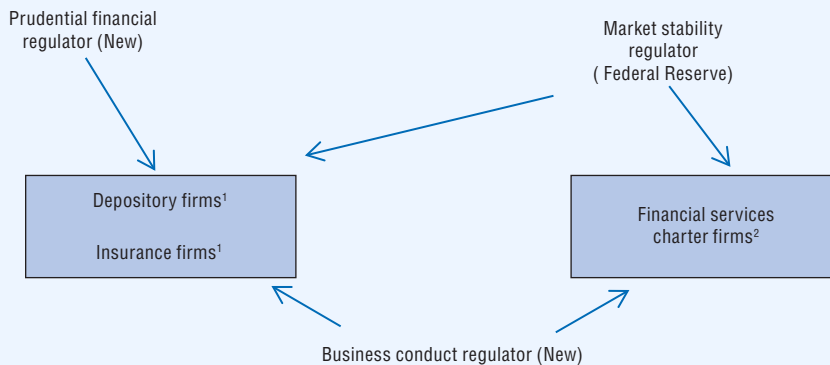
The current regulatory structure of US financial markets is based on the principle of “functional” regulation, which maintains separate regulatory agencies across segregated functional lines of financial services, such as banking, insurance, securities, and futures. This combination of “expert” regulators, each responsible for overseeing a specific function, was supposed to promote the resilience and the stability of the system. In practice, however, as documented in Annex 2.A2, the system is highly fragmented, with a complicated web of multiple federal and states statutes and agencies. While the functional system might have served the United States well in the past, this fragmented system with a plethora of specialised agencies is not longer well suited to supervise financial institutions that often and increasingly operate across the traditional sectoral boundaries. No single regulator has all of the information to monitor systemic risk or the authority to take coordinated action throughout the financial system. Furthermore, competition across regulators has increasingly become a costly model in terms of efficiency and effectiveness, resulting instead in duplication and inter-agency disputes, lowering accountability and allowing regulatory arbitrage.

There is therefore a strong case for abandoning the current fragmented functional system and adopting a “unified” cross-sectoral framework. Going cross-sector would help to avoid gaps (stability of independent investment banks falling between the cracks) as well as uneven treatment (deficient consumer protection in sectors with weaker regulatory standards). It can make regulation more effective and more efficient. The proposals advanced by the Treasury blueprint – discussed in Box 2.6 – provide a sensible basis for overhauling the current system (Treasury, 2008a).

Box 2.6. Models of financial regulation based on a “unified” cross-sectoral approach

Australia and the Netherlands have adopted a cross-sector regulatory approach, which emphasises regulation by “objectives”. In the light of their experiences, the US Treasury has put forward a blueprint to overhaul US financial regulation. It proposes three regulators: a market stability regulator, a prudential financial regulator and a business conduct regulator (Figure 2.14). The market stability regulator is to be responsible for overall conditions of financial market stability that could impact the real economy. Market stability regulation in this context should be focused on the overall financial system, and it should come with broad authority to collect information and to impose necessary corrective actions. The prudential financial regulator is to focus on financial institutions with some type of explicit government guarantee associated with their business operations. Prudential regulation in this context should be applied to individual firms, and it should operate much like the current regulation of depository institutions. (Note that in the Netherlands, the market stability and prudential functions are combined in a single supervisor, the central bank. For this reason, the Dutch system is often referred to as the “Twin Peak” model). The business conduct regulator is to be responsible for business conduct across all types of financial firms. Business conduct regulation in this context includes consumer protection, such as disclosures, business practices, and licensing.

Figure 2.14. **The regulatory framework proposed in the Treasury blueprint**



1. Include depository firms with access to federal deposit insurance and insurance firms with access to an insurance guaranty fund.
2. Include security firms, futures firms, exchanges, investment advisors, private pools of capital, and surplus lines insurers.

Source: Treasury (2008a).

The United Kingdom has also moved away from the traditional functional system and adopted a unified framework, by establishing a single regulator for all financial services, the Financial Services Authority (FSA). The single regulator model offers several advantages stemming from the enhanced efficiency from combining common functions undertaken by individual regulators into one entity. This should lower staff costs and lead to a more consistent approach to overall regulation across different types of financial products and institutions. Perhaps more importantly, a single regulator approach allows for a clearer view of overall risks to the financial system as one entity would regulate all financial institutions. Finally, it also avoids issues associated with overlapping jurisdictions of individual regulators.

Box 2.6. Models of financial regulation based on a “unified” cross-sectoral approach (*cont.*)

However, the current crisis suggests that the objectives-based framework of Australia and the Netherlands also has some merits. Above all, a single regulator in boom-times tends to focus on high-profile business conduct, while in fact market stability and prudential supervision have to be fostered precisely when markets are in bullish mood and the seeds for later busts are being sowed. Lack of priority given to prudential supervision of Northern Rock has been a key finding of the FSA's internal audit review. Separating prudential and conduct-of-business supervision into distinct regulators, as in the Treasury blueprint, may help avoid this by anchoring priority for prudential supervision within an earmarked regulator. Overall, while a unified cross-sectoral approach to financial regulations offers clear advantages over the current fragmented system of functional regulation, the choice between the objectives-based system and the single regulator is more difficult.

Focusing regulation on financial market stability

The creation of a market stability regulator is perhaps the most interesting and challenging feature of the Treasury blueprint. The Treasury argues that the Federal Reserve should assume this role given its traditional central bank role of promoting overall macroeconomic stability. In this respect, it will be key to disseminate information about financial market developments and their interactions with the macro economy. For this reason, the Federal Reserve should regularly publish a financial stability report, as it happens already in many other OECD countries. In the blueprint, the stability regulator would have clear legal authority to impose corrective actions on individual institutions as it deems necessary to foster financial market stability.

One issue that the Treasury blueprint leaves ambiguous is whether the market stability regulator, besides being given access to the information gathered by the prudential regulator, will have the power to conduct regular on-site inspections. The Federal Reserve has argued for such authority, which will be critical to ensuring that it has the information to impose appropriate corrective action (Bernanke, 2008c). One possible solution to avoid this problem is to merge the market stability regulator and the prudential regulator into a single regulator, as in the “Twin Peaks” Dutch model (Kremers and Schoenmaker).

Another aspect that the Treasury blueprint does not resolve is whether hedge funds and private-equity firms fall under the umbrella and the responsibilities of the market stability regulator. The market stability regulator cannot be indifferent to the scale of leverage and risk in these unregulated institutions, but it does not appear feasible to extend capital and other requirements to hedge funds and private-equity firms. The only realistic approach seems to be to influence these institutions through the intermediary of regulated institutions, notably through the large banks that regularly deal with hedge funds and private-equity firms (Geithner, 2008). In particular, the market stability regulator should foster counterparty-risk management that discourages regulated institutions from becoming excessively exposed to highly-levered institutions outside the regulatory framework. By encouraging appropriate margining and collateralisation requirements, the regulator can hope to generate market incentives that will work to reduce the scale of leverage and risk in the unregulated sector that could threaten the stability of the overall financial system.

The Federal Reserve, especially in the context of its enhanced mission of market stability regulator, should re-examine its policy regarding developments in asset prices. There is still no solid case for deviating from the standard prescription that monetary policy should not respond to asset prices *per se* and should instead focus on changes in the outlook for inflation and aggregate demand due to asset price movements. Reasons for this position include the difficulty of measuring asset price misalignment, the difficulty of anticipating future asset price booms and busts or the future effects of preventive policy actions, the difficulty in discriminating among different asset prices (such as housing prices and equity prices), and the possible dilution of the inflation objective (Mishkin and Schmidt-Hebbel, 2006). Yet, the unfolding of events since August 2007 suggests that a rapid rise in asset prices accompanied by a credit boom may reflect wide-reaching market failures. Indeed, regular on-site inspections could give the market stability regulator an informational advantage over market participants to determine if market failures may be driving episodes of booming credit growth and asset prices. It is not that on-site inspection would necessarily provide the market stability regulator direct evidence to discriminate between asset bubble and asset price movements supported by fundamentals, but they may help to spot malfunctions in the financial market that are likely to unduly boost some asset prices. For instance, on-site inspections of mortgage brokers, mortgage lenders, issuers of mortgage-backed securities, etc. over the 2004-06 period may have revealed that underwriting standards for subprime mortgages had become inadequate and other problems along the securitisation chain. By contrast, it appears unlikely that on-site inspections will help to prevent bubbles in the stock market. In conclusion, the market stability regulator, by implementing measures to address imperfections in the financial system, may help reduce the incidence and severity of future bubbles. Monetary policy, instead, appears to be too blunt a tool to address failures in specific financial markets, since the impact on the overall economy would need to be very large to ensure that the asset price bubble was actually deflated. Nonetheless, it is possible that future research will make a compelling case for adjusting the monetary policy stance in response to asset price movements, since future bubbles will likely create unanticipated difficulties and thus it may be difficult to implement a timely regulatory response.

In any case, the market stability regulator should promote policies to address the risks to financial stability from asset price bubbles and such policies should be operational at all times – whether a bubble is in progress or not. For instance, capital requirements should be raised during periods of economic buoyancy, when low default rates and strong profit growth would otherwise encourage banks to expand their risks even more vigorously, and lower them during periods of economic weakness. Such regulation would tend to limit the build up of leverage during the good times and reduce the amount of deleveraging required in bad times, contributing to greater overall economic stability. One approach to counter-cyclical capital requirements is to implement the “dynamic provisioning” already used in Spain. The fundamental principle underpinning dynamic provisioning is that capital requirements are set against outstanding loans in line with an estimate of long-run expected losses. Generally, the level of provisioning under this formula should be less subject to sharp swings associated to cyclical fluctuations in economic activity than under the current approach. One proposal along these lines, made by Goodhart and Persaud (2008), is to link an individual institution’s (Basel II) capital requirements to a geometric average of asset growth above some threshold in recent years. It should nonetheless be recognised that counter-cyclical regulation is not a fool-proof solution. First, the regulator

may not be able to recognise in real time what the state of affairs is. Second, the implementation of dynamic provisioning would imply that in bad times financial institutions will be moving up the estimate of long-run expected losses.

Countering regulatory arbitrage

Regulatory arbitrage means both taking advantage of regulatory loopholes and choosing a place of business where regulation is lighter. The first job of a new prudential regulator (or a combination of the relevant various regulators in the current system) should be to reduce regulatory incentives for financial institutions to move intermediation to off-balance sheet structures to which the institutions have a risk exposure, as occurred on a large scale in recent years. Doing so is relatively straightforward when financial institutions guarantee liabilities of the off-balance entities or have a legal obligation to extend credit to them. Indeed, Basel II rules should reduce regulatory incentives to develop intermediation off-balance sheet. However, there are also cases, which proved to be important during the crisis, where financial institutions may choose to bail out associated entities even in the absence of a legal obligation to do so in order to protect their reputation. More reflection will be required on how to handle off balance sheet exposures that arise from reputational concerns rather than from legal obligations. Unless the prudential regulator identifies some proven mechanism by which financial institutions could credibly commit to not rescuing associated structures for reputational reasons, capital charges would need to reflect a continuum of off-balance sheet exposure, ranging from a legal obligation to a reputational obligation to no obligation at all. It would also be helpful if accounting and auditing rules could foster more transparency.

As discussed in the previous section of this chapter, capital adequacy regulations provided financial institutions with an incentive to hold securities in their trading accounts (for eventual sale) rather than in their long-term assets portfolio, as capital charges are lower on the former. This loophole increased the attractiveness of securitised debt relative to loans with similar credit ratings, which, in contrast, could have not been held in trading accounts for a long time. As a result, the sizeable assets held in the trading account were not properly covered by capital, increasing risks to the system. Regulators are working on amending Basel II regulations to exclude from transaction accounts assets that are not being held to be traded in the short term.

Factoring remuneration structures into regulation

Remuneration arrangements in the financial sector are considered to encourage excessive risk taking because senior managers are rewarded for generating high profits in high-risk strategies but often are not held accountable for subsequent losses, and market changes that have resulted from the development and growth of structured products have amplified these incentives problems (Rajan, 2005). Shareholders of public companies have had little power under the current corporate governance framework to insist on remuneration arrangements that better align managers' incentives with shareholder interests. To counter this problem, the United Kingdom and the Netherlands have recently implemented measures giving shareholders the right to a vote (nonbinding in the United Kingdom) against remuneration arrangements for top company officers. If these arrangements do promote better incentives, they could be worth imitating in the United States. For their part, regulators should take into account remuneration structures when

considering the overall risk posed by a financial institution, as the UK financial regulator and supervisor, the Financial Services Authority, plans to do.

One should expect the private sector to react to these problems. The International Institute of Finance (IIF) Committee issued recommendations on best practices on remuneration arrangements to its members, which include all major players in global finance. The IIF acknowledged that the growth of structured products and the originate-to-distribute business model have created incentives [...] that have, in some cases, conflicted with sound underwriting practices, realisation of risk management goals, or the long-term interests of the firm and shareholders (IIF, 2008). The IIF considers, quite reasonably, that externally mandated compensation policies would not be efficient. Rather, it encourages its members to relate compensation policies more closely to shareholders' interests and long-term firm-wide profitability by deferrals. For instance, the IIF suggests that severance pay for top executives should reflect realised performance for shareholders over time. Furthermore, since financial sector returns often accrue over multi-year periods and are uncertain, firms should consider linking compensation to the risk time horizon, possibly through clawback provisions and deferred bonuses. The IIF also advises its members to take the risk-adjusted cost of capital into account when determining performance-related compensation. Finally, the IIF calls for more transparency and disclosure to shareholders of compensation policies and criteria, focussing on principles and process, including showing how such policies are aligned with the firm's business strategy.

Regulating investment banking activities

One of the lessons of the ongoing financial crisis is that the business model of the large investment banks may no longer be viable. Lehman Brothers has filed for bankruptcy while Bear Stearns and Merrill Lynch have been acquired by large commercial banks. The two surviving large independent investment banks, Goldman Sachs and Morgan Stanley, have become bank holding companies, and thereby are now fall under the regulatory umbrella of the Federal Reserve. These developments have helped moving on the previous arrangements – the SEC's oversight of the holding companies of the large investment banks was based on a voluntary agreement between the SEC and those firms – but further action is required to effectively and efficiently regulate investment banking activities within a large financial institutions. First of all, the Federal Reserve should indicate whether and how the new credit facilities available to the primary dealers, the Term Securities Lending Facility and the Primary Dealer Credit Facility, will operate after the financial crisis has passed. In doing so, the central bank should strive to achieve a balance between regulation and economic efficiency.

In the longer term, legislation is needed to provide a more robust framework require consolidated and uniform supervision of those firms with investment bank units, providing the regulator with the authority to set standards for capital and liquidity holdings as well for risk management. Some observers have questioned whether commercial banks should be allowed to own an investment banks (Blundell-Wignall and Atkinson, 2008). While there seems no clear-cut answer on how to more efficiently regulate investment banking activities, we should also remember that poorly designed regulation has the potential to make things worse. Policymakers should importantly recognise that imposing costly requirements on regulated financial institutions may push activities, and the associated risks, to the unregulated financial sector (*i.e.* hedge funds). And this is unlikely to improve overall financial stability, it only puts risk outside the regulatory reach. In any case, the financial

infrastructure should be strengthened so that the consequences of financial institutions becoming illiquid, at least in normal times, would have limited systemic consequences. To this end, steps taken by the US authorities to establish clearing and settling facilities for credit default swaps and other over-the-counter derivatives are welcome.

Overall, the severity and the complexity of the crisis make a compelling case for reviewing the regulatory framework for regulating investment banking activities. It should be recognised that poorly designed regulation has the potential to make things worse. Above all, regulators should be aware that too much regulation may push some business, and associated risk, to the unregulated sector.

Regulating mortgage lenders

The collapse of the market for nonconforming mortgage securitisation and the government take-over of Fannie Mae and Freddie Mac have exposed fundamental flaws in the system of housing finance. The process of recovery and repair of the mortgage market will be gradual, entailing both renewed market discipline and aggressive regulatory actions.

A first set of problems requires regulators to strengthen the supervision of mortgage origination and to remove impediments to voluntary loan restructuring. As documented in the first section of this chapter, the increasingly poor performance of recent vintages of Alt-A and subprime mortgages partly reflects a decline in lending standards since the mid-2000s. Furthermore, public enforcement agencies, at both the Federal and state levels, have mounted investigations to understand the source of this problem, revealing that mortgage brokers were often involved in deceptive practices. Actions taken by the authorities to regulate the origination of high-cost mortgages and to develop strong licensing requirements for mortgage brokers are therefore welcome. New rules regarding high-cost mortgages – which should include most Alt-A and subprime loans – issued by the Federal Reserve in July 2008 require that lenders verify borrowers' income and assets, assess borrowers' ability to afford the full cost of the loans (not simply low initial rates), limit prepayment penalties, and ensure that local taxes and other costs are placed into escrow accounts. If these rules are strictly implemented, the underwriting standards of Alt-A and subprime loans in securitisation pools should improve. Furthermore, the new licensing standards for mortgage brokers require that they are qualified and properly screened and that prospective borrowers can easily look up a broker's employment history, violations, complaints and other information. State authorities are in the process of setting up such licensing databases, and in some states they are already available to the public. The newly approved legislation also calls for uniform minimum licensing qualification standards for state mortgage market participants. It is important that these include personal conduct and disciplinary history, minimum educational requirements, testing criteria and procedures and appropriate license revocation standards.

As noted above, the deteriorating standards can also be ascribed to agency problems, since mortgage brokers were often paid on the basis of the volume of mortgages arranged without regard to their quality. It is essential therefore that the private sector take the lead and develop compensation schemes that better align the incentives of mortgage brokers with those of lenders and other upstream investors along the securitisation chain. In any case, the new rules regarding high-cost mortgages should reduce incentives for mortgage brokers to steer borrowers toward loans that they cannot afford and do not fully understand. Furthermore, the new rules promote some standardisation for this class of

risky mortgages, and thus facilitate the due-diligence efforts of credit rating agencies and upstream investors.

The mounting wave of foreclosures has also revealed legal impediments to mortgage restructuring that are also likely to create further problems in the future, if left unchecked. One of such impediments, as discussed in the previous section of this chapter, is that second-mortgage holders have often stood in the way of voluntary work-outs between first-mortgage holders and distressed borrowers. To this end, bankruptcy laws should be reformed to allow judges to reduce the mortgage principal on owner-occupied residences. Although this may lead to higher interest rate in the future, it provides clear incentives for second-mortgage holders to participate in restructuring agreements. Furthermore, federal authorities should also encourage US states to alter property laws so that second mortgages will remain subordinated to modified first mortgages, as long as the new loans do not alter the obligations of the borrowers in a way that is materially prejudicial to the holders of the junior mortgages. Such amendments would not only help the resolution of future crises but would also discourage borrowers to take on multiple mortgages.

Regulating GSEs

Events since the beginning of June 2008 have exposed fundamental weaknesses in the government-sponsored enterprises (GSE). After a sharp drop in the share prices of Fannie Mae and Freddie Mac reflecting concerns that the two companies may have become insolvent, the federal government first tried to re-assure investors that the two GSEs would not be allowed to fail but, in September, it was forced to put them into conservatorship and provide financial support. The government's actions seem to have stabilised the two companies, even though they are still facing difficulties as virtually all other firms. In addition, mortgage interest rates have declined somewhat. As a background for these aggressive policy responses, it should be emphasised that Fannie Mae and Freddie Mac had clearly become too big to fail. To put their size in perspective, as of March 2008, the combination of the MBS that they guarantee (USD 3.0 trillion) and their debt outstanding (USD 1.5 trillion) totalled USD 4.5 trillion, slightly smaller than the publicly held debt of the federal government (USD 5.1 trillion) and nearly half of the value of all residential mortgages outstanding (USD 10 trillion). Furthermore, both GSEs are highly leveraged institutions since they are subject to very low capital requirements: they need to maintain equity capital of 2.5% of assets (plus 0.45% of balance sheet obligations) while commercial banks are required to hold 4% for tier 1 capital and 8% for tier 2 capital. The justification for the low capital holdings of the GSEs relative to commercial banks is unclear. The largest banks are more diversified than the GSEs, and although banks likely assume greater credit risks, they likely are less subject to interest rate risk than are the GSEs.

Following the crisis of confidence in GSE solvency, policymakers had little choice in order to avoid major disruptions in the global financial markets and ensure the flow of capital for mortgage lending. Issuance of private-label MBSs has come to a halt, and it will take time and aggressive actions to ensure that the private sector will be able to ensure an adequate flow of funds towards mortgage lending. In this context, actions taken by the US authorities have been generally appropriate. It is also important that newly established authority, the Federal Housing Finance Agency, in charge of the supervision the GSEs, exercises stronger oversight than its predecessors. The longer term advantages of these GSEs are, however, doubtful. They had been created to help develop the US mortgage market, and this market is now the deepest and most developed in the world. Since they

can borrow at low rates, owing to their ties with the federal government, they provide a small subsidy to home ownership, but this subsidy is badly targeted and, as is now clear, it implies huge financial risks for the taxpayers. In a longer term perspective, the securitisation of mortgages, including (or even especially) prime mortgages, should be left to the private sector, as in most other countries in order to foster competition and reduce moral hazard risks. After the financial crisis has passed, this process should begin with the federal government selling its stocks in Fannie Mae and Freddie Mac and credibly removing access to preferential lending facilities with Treasury or the Federal Reserve. Furthermore, the two GSEs should be subject to same regulation and supervision (including capital adequacy requirements) as other issuers of mortgage-backed securities, and be divided into smaller companies to reduce the risk that they remain too big to fail.

Strengthening private-sector securitisation

A key priority is to repair the mortgage securitisation market, since the recent experience has revealed deep problems at all levels. Credit agencies will continue to have an important role, notwithstanding the flaws revealed during the crisis. The authorities can strengthen the rating process by implementing the reforms first suggested by the Financial Stability Forum and then codified in the proposals by the Securities and Exchange Commission issued in March 2008. Above all, to reduce conflict of interest, credit rating agencies should be prohibited from structuring the same products that they rate. To enhance transparency and foster competition, credit rating agencies should make all of their ratings publicly available, and disclose the information used to determine a rating on a structured product, including information on the underlying assets.

The incentives of investors and investment managers need to be aligned. The remuneration arrangements of investment managers should be evaluated relative to an index of structured products in order to give managers appropriate incentives to conduct their own due diligence. The issuer needs to retain un-hedged equity tranche exposure to every securitisation deal. And finally, originators should have adequate capital so that warranties and representations can be taken seriously. The US authorities have recently taken actions to promote a market for residential covered bonds in the United States (Treasury, 2008b). As discussed in the first section of this chapter, covered bonds are less susceptible to incentives problems than mortgage-backed securities since the credit risk of the underlying mortgage pool remains with the issuer. It is not, however, clear how far the authorities will have to go to foster these developments, since the market has already begun taking remedial steps in the right direction.

Concluding remarks on the lessons from the crisis

There is now a rare political opportunity to overhaul the regulatory and the supervisory system for financial markets, and introduce a better system, one that is more suited to the modern financial landscape. At a minimum, such reform should address the problems exposed by the financial crisis in order to prevent or mitigate future crises. It is vital that the authorities seize this opportunity to implement the necessary reforms in a timely manner and that it does not dissipate the political capital required to implement such a comprehensive reform. Box 2.7 provides a long list of areas where to start.

Box 2.7. Policy recommendations for financial prevention

The financial crisis has revealed the need for a major overhaul of financial regulation. The regulatory framework should be adapted to the changes that have occurred in the structure of the financial system, including the enormous growth of nonbank financial institutions and the development of securitisation and new financial products.

For the broader financial system:

- Move away from the existing fragmented regulatory structure. The new unified approach advanced in the Treasury blueprint provides a sensible basis but many important details need to be resolved. Notably, if the Federal Reserve is to take on new responsibilities, by explicitly taking on the role of market-stability regulator, it should be granted broad powers. Its authority should include the ability to directly examine banks and other financial institutions, including those that are subject to prudential regulation, and to collect information on the structure and the workings of financial markets.
- Banks and other financial institutions should be more tightly regulated and supervised. They should hold capital against off-balance sheet risks, so as to counter regulatory arbitrage.
- Counter-cyclical capital requirements should be introduced and greater emphasis put on the leverage ratio to improve the stability of the system over the cycle.
- Consider changes in laws/regulations concerning corporate governance to give shareholders more influence over management – such as giving shareholders the right to vote against remuneration packages, as is now possible in the UK and the Netherlands, for example – in order to facilitate the negotiation of remuneration arrangements that align management incentives better with shareholder interests. Regulators should consider remuneration structures when assessing the risks posed by any given financial institution.

For financial institutions with large investment bank units:

- These institutions should be brought under the umbrella of a single regulator, having the authority to set standards for capital, leverage, liquidity holdings, and risk management. However, these should not necessarily be the same as those applied to smaller commercial banks.

For mortgage lenders and the GSEs:

- Carefully implement the new Federal Reserve guidelines for high-cost mortgages to ensure the underwriting standards for non-prime mortgages are upgraded.
- Reduce legal impediments to voluntary mortgage restructuring. Reform the bankruptcy laws to allow judges to reduce the mortgage principal on owner-occupied residences to provide greater incentives for lenders to participate in restructuring agreements. Amend property laws so that second-mortgage holders cannot unduly hold back restructuring agreements between first-mortgage holders and borrowers.
- The securitisation of mortgages should be left entirely to the private sector, like in other countries. In order to foster competition and reduce moral hazard, this requires that the GSEs are fully privatised, no longer have access to preferential lending facilities with the federal government; are subject to same regulation and supervision (including capital adequacy requirements) as other issuers of mortgage-backed securities; and are divided into smaller companies that are not too big to fail.
- Help the private sector solve the agency problems that have afflicted the securitisation of mortgages. Put in place the SEC proposed reforms to improve the credit rating process, including by prohibiting firms to structure the same products that they rate and by disclosing the information used to determine a rating.

Bibliography

- Ahearne A., J. Ammer, B. Doyle, L. Kole and R. Martin (2005), "House Prices and Monetary Policy: A Cross-Country Study", *International Finance Discussion Papers*, No. 841, Washington: Board of Governors of the Federal Reserve System.
- Ashcraft, A. and T. Schuermann (2008), "Understanding the Securitization of Subprime Mortgage Credit", *Federal Reserve Bank of New York Staff Reports*, No. 318, March.
- Baily, M., D. Elmendorf and R. Litan (2008), "The Great Credit Squeeze: How It Happened, How to Prevent Another", Discussion Paper, Brookings Institution: Washington DC, May.
- Bernanke, B. (2008a), *Fostering Sustainable Homeownership*, Speech delivered at the National Community Reinvestment Coalition Annual Meeting, Washington DC, March.
- Bernanke, B. (2008b), *Stabilizing the Financial Markets and the Economy*, Speech delivered at the Economic Club of New York, New York, NY, October.
- Bernanke, B. (2008c), *Fostering Sustainable Homeownership*, Speech delivered at the Federal Deposit Insurance Corporation's Forum on Mortgage Lending for Low and Moderate Income Households, Arlington, VA, July.
- Blundell-Wignall, A. (2008), "The Subprime Crisis: Size, Deleveraging and Some Policy Options", *Financial Market Trends*, Vol. 2008/1, No. 94.
- Blundell-Wignall, A. and P. Atkinson (2008), "The Sub-prime Crisis: Causal Distortions and Regulatory Reform", *Lessons from the Financial Turmoil of 2007 and 2008*, Reserve Bank of Australia 2008 Conference, October.
- Cecchetti, S. (2008), "Crisis and Responses: the Federal Reserve and the Financial Crisis of 2007-08", NBER Working Paper, No. 14134, June.
- Congressional Budget Office (2008), *Policy Options for the Housing and Financial Markets*, April.
- Curry T. and L. Shibut (2000), "Cost of the Savings and Loan Crisis: truth and Consequences", *FDIC Banking Review*, Vol. 13, No. 2, pp. 26-35, December.
- Deutsche Bank (2008a), *Mortgage-backed securities special report*, 5 May.
- Deutsche Bank (2008b), "Unwinding leverage", *Global Economic Perspectives*, July 28.
- Doms, M, F. Furlong and J. Krainer (2007), "Subprime Mortgage Delinquency Rates", Working Paper, No. 2007-33, Federal Reserve Bank of San Francisco, November.
- Dudley, W. (2008), *May You Live in Interesting Times: The Sequel*, remarks delivered at the Federal Reserve Bank of Chicago's 44th Annual Conference on Bank Structure and Competition, Chicago, May.
- European Central Bank (2008), *Financial Integration in Europe*, Frankfurt, April.
- Fleming, M., W. Hrungrung and J. McAndrews, (2008), "The Market Impact of the Term Securities Lending Facility", working paper.
- Geithner, T. (2008), *Reducing systemic risk in a dynamic financial system*, remarks delivered at The Economic Club of New York, New York, June.
- Goodhart, C. and A. Persaud (2008), "How to avoid the next crash", *Financial Times*, January 30.
- Gramlich, E. (2007a), *Booms and Busts: The Case of Subprime Mortgages*, paper presented at the Federal Reserve Bank of Kansas City Symposium: Jackson Hole, WY, 31 August-1 September.
- Gramlich, E. (2007b), *Subprime Mortgages: America's Latest Boom and Bust*, The Urban Institute: Washington DC.
- Institute of International Finance (2008), *Final Report of the IIF Committee on Market Best Practices: Principles of Conduct and Best Practice Recommendations*, Financial Services Industry Response to the Market Turmoil of 2007-2008, Washington DC, July.
- Joint Forum (2008), *Credit Risk Transfer – Developments from 2005 to 2007*, Bank for International Settlements: Basel, Switzerland.
- Lockhart, J. (2007), *Housing, Subprime and GSE Reform: Where we are Headed*, Speech delivered at the exchequer club of Washington DC.
- McAndrews, J., A. Sarkar and Z. Wang, "The Effect of the Term Auction Facility on the London Inter-bank Offered Rate", *Current Issues in Economics and Finance*, Federal Reserve Bank of New York.

- Mayer, C. and K. Pence, "Subprime Mortgages: What, Where, and to Whom?", NBER Working Paper, No. 14083, June.
- Mishkin, F. and K. Schmidt-Hebbel (2006), "Monetary Policy under Inflation Targeting: An Introduction", Working Paper, No. 396, December; reprinted in *Monetary Policy under Inflation Targeting*, edited by F. Mishkin and K. Schmidt-Hebbel, Santiago, Chile, 2007.
- OECD (2008), *Economic Outlook*, No. 84, OECD, June.
- Paulson, H. (2008), *Remarks on Financial Rescue Package and Economic Update*, Department of the Treasury, November.
- Rajan, R. (2005), *Has Financial Development Made the World Riskier?*, Speech delivered at the Jackson Hole Conference.
- Taylor, J. and J. Williams (2008), "A Black Swan in the Money Market", *Working Paper Series*, No. 2008-04, Federal Reserve Bank of San Francisco, April.
- Treasury (2008a), *The Department of the Treasury Blueprint for a Modernized Financial Regulatory System*, The Department of the Treasury, Washington DC, March.
- Treasury (2008b), *Best Practices for Residential Covered Bonds*, The Department of the Treasury, Washington DC, July.
- Warsh, K. (2008), *Financial Market Turmoil and the Federal Reserve: The Plot Thickens*, speech delivered at the New York University School of Law Global Economic Policy Forum, New York, April.

ANNEX 2.A1

Box 2.A1.1. Key features of the main categories of mortgage loans

A *mortgage loan* is a loan secured by real property through the use of a mortgage (a legal instrument). However, the word mortgage alone, in everyday usage and often in this Survey, is most often used to mean mortgage loan.

The two basic types of amortised loans are the fixed rate mortgage (FRM) and adjustable rate mortgage (ARM). Other types tend to be combinations of these two. Fixed-rate mortgages are by far the most common, accounting for about 70% of the value of outstanding mortgages.

There is a wide range of mortgages available to homeowner in the United States for either purchasing of new residences or refinancing of previous loans. Mortgage characteristics, including the principal and the credit worthiness of borrowers, vary across originators. The main types are reported below.

- *FHA/VA mortgages* refer to loans issued by federally qualified lenders and insured by the Federal Housing Administration (FHA) and Veteran Administration (VA), respectively. FHA loans have historically being targeted to lower income borrowers while VA loans are only made available to current and previous members of the US armed forces. Both agencies allow high loan-to-value (LTV) ratios, up to 97% for VA and 100% VA, but these mortgages are considered the safest since they carry the explicit backing of the federal government. FHA/VA mortgages are typically purchased and securitised by the Government National Mortgage Association (Ginnie Mae), a government-owned company. Ginnie Mae securities are the only mortgage-backed securities (MBS) that are explicitly guaranteed by the US government
- *Conforming mortgages* are loans to prime borrowers that conform to the established rules and procedures set by the two major Government Sponsored Agencies (GSEs), the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). The original principal of conforming mortgages must be equal to or less than the applicable conforming loan limit, which is established each year by Office of Federal Housing Enterprise Oversight (OFHEO). The current conforming loan limit for a one-family residence in most geographic areas is USD 417 000. The 2008 economic stimulus package temporarily increased the limit for high-cost areas to USD 729 750 from USD 625 500. Furthermore, most conforming mortgages are loans with a LTV ratio below 80% and with full income documentation. But there are exceptions: for example, Fannie Mae used to purchase a NINA (no-income, no-asset) loan. Conforming mortgages are generally considered very safe since they respect strict underwriting standards and the securities issued by the GSEs benefit from the implicit backing of the federal government. Together, FHA/VA and conforming mortgages are often referred, also in this Survey, as *agency mortgages*.

Box 2.A1.1. Key features of the main categories of mortgage loans (cont.)

- *Jumbo mortgages* include loans to prime borrowers with an original principal balance larger than the conforming limits imposed on the GSEs by the US Congress. (Often data on jumbo mortgages also include non-agency prime mortgages with limit below the GSEs threshold). Jumbo borrowers are typically more sophisticated than agency borrowers and because of their creditworthiness, have more refinancing and loan options available to them. They also tend to have lower LTV ratios and higher credit scores. As a result, jumbo loans are often prepaid at faster rates than agency loans.
- *Home equity lines (HEL)* are types of loan secured by the equity in a home, which is the difference between the market value of the home and the remaining balance on all of its mortgages. They typically require good credit history and reasonable LTV ratios. Most HEL are most commonly second position mortgages and are often referred to as second mortgages, because they are secured against the value of the property, just like a traditional mortgage loans. They can be structured as a revolving credit loan, also referred to as a *home equity line of credit (HELOC)*, where the borrower can choose when and how often to borrow against the equity in the property, with the lender setting an initial limit to the credit line.
- *Alt-A mortgages* refer to a class of loans to borrowers with a good credit score but originated on the basis more aggressive underwriting than for conforming or jumbo loans. Often, the LTV ratio exceeds the maximum level permitted in conforming mortgages or the loan is secured by non-owner occupied property. In addition, the loan documentation may not be complete or the borrower's income/assets have not have been verified. Many loans with non-traditional amortisation schedules such as interest only or option adjustable rate mortgages are sold into securities marked as alt-A. As a result, Alt-A mortgages generally have a higher risk of default than prime ("A") mortgages.
- *Subprime mortgages* are loans to borrowers with blemished credit history and/or who provide only limited documentation of their income or assets. These "B" and "C" loans typically have lower credit scores and high LTV ratios. Subprime mortgage loans are often originated by lenders specialising in this type of business, using processes unique to subprime loans. They are considered the riskiest loans.

Table 2.A1.1 shows the average borrower characteristics of Alt-A and subprime loans in MBS pools, broken out by year of origination. The most dramatic difference between the two panels is the FICO credit score, as the average Alt-A borrower has a FICO score that is substantially higher than the average subprime borrower in 2006. Subprime borrowers typically have a higher CLTV (combined LTV, that is including both first and junior mortgages), but are more likely to document income and are less likely to purchase a principal residence. Alt-A borrowers are more likely to be investors and are more likely to have silent second mortgages on the property. (A silent second is a second mortgage that was not disclosed to the first mortgage lender at the time of origination.) The data also reveal how subprime borrowers have changed. Note that the CLTV of a subprime loan has been increasing since 1999, as has the fraction of loans with silent second mortgages. Moreover, the table illustrates that borrowers have become less likely to document their income over time, and that the fraction of borrowers using the loan to purchase a property has increased significantly since the start of the decade. Together, these data suggest that the average subprime borrower has become significantly more risky, especially since 2004.

Box 2.A1.1. **Key features of the main categories of mortgage loans** (cont.)Table 2.A1.1. **Underwriting characteristics of loans in MBS pools**

	CLTV ¹	Full doc	Purchase	Investor	No prepayment penalty	FICO score ²	Silent 2nd mortgage
A. Alt-A Loans							
1999	77.5	38.4	51.8	18.6	79.4	696	0.1
2000	80.2	35.4	68.0	13.8	79.0	697	0.2
2001	77.7	34.8	50.4	8.2	78.8	703	1.4
2002	76.5	36.0	47.4	12.5	70.1	708	2.4
2003	74.9	33.0	39.4	18.5	71.2	711	12.4
2004	79.5	32.4	53.9	17.0	64.8	708	28.6
2005	79.0	27.4	49.4	14.8	56.9	713	32.4
2006	80.6	16.4	45.7	12.9	47.9	708	38.9
B. Subprime Loans							
1999	78.8	68.7	30.1	5.3	28.7	605	0.5
2000	79.5	73.4	36.2	5.5	25.4	596	1.3
2001	80.3	71.5	31.3	5.3	21.0	605	2.8
2002	80.7	65.9	29.9	5.4	20.3	614	2.9
2003	82.4	63.9	30.2	5.6	23.2	624	7.3
2004	83.9	62.2	35.7	5.6	24.6	624	15.8
2005	85.3	58.3	40.5	5.5	26.8	627	24.6
2006	85.5	57.7	42.1	5.6	28.9	623	27.5

Note: All entries are in percentage points except the FICO score.

1. Cumulated loan-to-value ratio (CLTV) includes both first and second mortgages.

2. Credit rating by major credit bureau (FICO).

Source: Ashcraft and Schuermann (2008) using LoanPerformance data.

It is important to emphasise that there are alternative sources for non-conforming mortgage data and that there is no consensus among either lenders or researchers about what types of mortgages should be considered subprime, so the mortgage data reported below, and also elsewhere in the Survey, should be regarded with some scepticism and not be taken at face value. Mayer and Spence (2008) discuss the major sources for subprime mortgage data and show that estimates of the number of subprime originations are sensitive to which types of mortgages are categorised as subprime.

ANNEX 2.A2

Box 2.A2.1. The current regulatory structure of US financial markets

Overview – The regulatory framework of US financial markets is based on a structure that has been knit together over a long time. It has evolved through subsequent steps in response to specific problems without any real focus on overall mission: Congress established the national bank charter in 1863 during the Civil War, the Federal Reserve System in 1913 in response to various episodes of financial instability, and the federal deposit insurance system during the Great Depression. Changes were made to the regulatory structure in the intervening years in response to other financial crises, but for the most part the underlying structure still resembles what existed in the 1930s. In the recent past, the legislation, such as the Financial Modernization Act of 1999 (also known as the Gramm-Leach-Bliley Act), have begun streamlining the framework by setting out the principles of “functional regulation”, that is by establishing that “expert” regulators ought to supervise the relevant function. However, developments in capital markets and in the financial services industry over that past decade have repeatedly put the existing structure under pressure, exposing its deficiencies and its redundancies.

The system, in particular, remains highly fragmented, with a complicated web of multiple federal and state statutes and a myriad of agencies. There are several federal regulators for the banking sectors and for the securities and futures markets. The current number of agencies seems excessive especially for depository institutions, with jurisdictional boundaries often blurring and responsibilities significantly overlapping. For the insurance sector, the regulatory framework is even more segmented since there is no federal insurance regulator while there are more than fifty separate regulators at the state and local level.

The remainder of the box briefly lays out the main regulators and their functions.

Depository institutions – these include all commercial and savings banks. All depository institutions need a basic license to operate, the so-called “charter”, and the type of charter largely determines the primary regulator and the regulatory regime governing its operations. A noteworthy feature of the US system is that charters can be obtained at either the federal or state level.

- *Federal Reserve System (FRS)* – oversees state-chartered banks and trust companies that belong to the Federal Reserve System, bank holding companies (including financial holding companies), and US branches and agencies of foreign banks. In addition, the Federal Reserve possesses general consumer protection authority over all depository institutions at the federal level. To protect consumers, Congress over the years has enacted several important statutes applicable to all lenders, including: the Truth in Lending Act (TILA), which requires that credit terms for both credit card and mortgage transactions be clearly disclosed so consumers can compare credit terms more readily and knowledgeably; and the Home Ownership and Equity Protection Act (HOEPA), which

Box 2.A2.1. The current regulatory structure of US financial markets (cont.)

amended TILA to prohibit unfair or deceptive acts for mortgage lending. The Federal Reserve has sole authority to write regulations implementing TILA and HOEPA. These rules issued by the Federal Reserve apply to all mortgage lenders but are enforced by the various bank regulators depending on the type of depository institution.

- *Federal Deposit Insurance Corporation (FDIC)* – regulates state-chartered banks that do not belong to the Federal Reserve System. The FDIC also administers the federal deposit insurance system insures and thus has backup regulatory and examination authority over all depository institutions that it insures. In addition, the FDIC plays a key role in administering the process of resolution of failed institutions.
- *Office of the Comptroller of the Currency (OCC)* – regulates all federally chartered “national” (“N.A.”) banks, and also supervises the federal branches and agencies of foreign banks.
- *National Credit Union Administration (NCUA)* – regulates federally chartered credit unions.
- *Office of Thrift Supervision (OTS)* – oversees federal savings and loans and federal savings banks.
- *State Banking Departments* (50 states and the District of Columbia) – regulate state-chartered banks.

Securities and futures markets – the principal category of intermediaries in the securities markets are the brokers and the dealers. Essentially, a broker is a firm or individual who acts as an intermediary between buyers and sellers of securities, usually charging a commission for these services. A dealer is a firm or person who is in the business of buying and selling securities for her own account, either directly or through a broker. Many firms operate as both brokers and dealers.

- *Securities and Exchange Commission (SEC)* – regulates the purchase and sale of “securities” at the national/federal level. In addition, in 2004, the SEC implemented a voluntary programme to regulate certain major US securities firms on a consolidated or group-wide basis. The SEC generally therefore examines all registered broker-dealers associated with Consolidated Supervised Entities (CSEs), material affiliates of a CSE, as well as the ultimate holding company. Under the programme, the CSEs are required to maintain a system of internal controls, adequate capital, and sufficient liquidity to ensure that they can meet any obligatory cash commitments, even in a stressed environment. However, the SEC does not examine a CSE ultimate holding company or material affiliate if it already has a “principal regulator” in order to reduce duplicative/inconsistent regulation and the associated burden to firms. Last, since the Credit Rating Agency Reform Act of 2006, the SEC has the authority to register and oversee rating agencies. Registered nationally recognized statistical rating organisations (NRSROs) are subject to, among other duties and authorities, ongoing disclosure and recordkeeping requirements and SEC examination.
- *State securities regulators* (50 states and the District of Columbia) – administer and enforce the state statutes regulating securities transactions. These so-called “blue sky” laws typically include two basic requirements: the registration of securities and the registration and supervision of securities firms and professionals. In addition, state securities statutes commonly include provisions that prohibit securities fraud and that give state authorities the power to enforce those provisions.
- *The Commodity Futures Trading Commission (CFTC)* – regulates the purchase and sale of commodity and financial futures and options at the federal level. It does not have the authority to regulate transactions of over-the-counter derivatives. There is some overlap across the SEC and the CFTC. For instance, futures contracts on single securities and on narrow-based security indices are jointly regulated by the CFTC and SEC.

Box 2.A2.1. **The current regulatory structure of US financial markets** (cont.)

Insurance companies – these are primarily regulated by states. State statutes mainly deal with solvency regulation and consumer protection or market regulation. One of the rare instances in which Congress involved itself in insurance regulation was in 1974 with the enactment of the Employee Retirement Income Security Act (ERISA) that established regulatory requirements for employer-sponsored retirement plans, as well as other benefits such as medical, life, and disability insurance. The Department of Labour administers and enforces ERISA.

- There are 51 separate regulators in the United States (50 states and the District of Columbia) and additional regulators in some US territories (Puerto Rico and the US Virgin Islands). The *National Association of Insurance Commissioners* (NAIC) was created in 1871 to address the need to coordinate regulation among the states by providing a forum for the development of uniform policy. Its mandate is to protect the public interest; promote competitive markets and the reliability, solvency and financial solidity of insurance institutions; facilitate the fair and equitable treatment of insurance consumers; and support and improve state regulation of insurance.

Chapter 3

Health care reform

In spite of improvements, on various measures of health outcomes the United States appears to rank relatively poorly among OECD countries. Health expenditures, in contrast, are significantly higher than in any other OECD country. While there are factors beyond the health-care system itself that contribute to this gap in performance, there is also likely to be scope to improve the health of Americans while reducing, or at least not increasing spending. This chapter focuses on two factors that contribute to this discrepancy between health outcomes and health expenditures in the United States: inequitable access to medical services and subsidised private insurance policies; and inefficiencies in public health insurance. It then suggests two sets of reforms likely to improve the US health-care system. The first is a package of reforms to achieve close to universal health insurance coverage. The second set of reforms relates to payment methods and coverage decisions within the Medicare programme to realign incentives and increase the extent of economic evaluation of different medical procedures.

The US health-care system has many attractive features: in particular, most of the population has access to high standards of medical care, which are being continuously enhanced through cutting edge technological innovation. Nevertheless, the overall health status of the US population, as reflected in variables such as life expectancy and potential years of life lost, appears to rank among the lower third of OECD countries, despite much higher health expenditure per capita than in any other country. While many factors other than the performance of the health-care system affect health, the US health-care system can make a greater contribution to improving the health status of the US population without increasing expenditure, including by expanding access to health care. According to the 2008 *Economic Report of the President*, there are “substantial opportunities for reforms that would reduce costs, increase access, enhance quality, and improve the health of Americans”. Seizing these opportunities would thus contribute to achievement of the main objectives of the US Department of Health and Human Services (since 1990), namely: to reduce and ultimately eliminate health inequalities among various segments of the US population, including those among gender, ethnic, socioeconomic and geographic groups; and to increase life expectancy and quality of life among Americans of all ages.

There is growing public concern about rapidly increasing health costs and the growing number of uninsured people. In the longer term, rising Medicare expenditure is the main threat to the sustainability of public finances. Federal policymakers have tried to address these challenges with incremental reforms, including a shift to managed-care organisations (HMOs and PPOs), the introduction of health-savings accounts and reforms to Medicare. However, these reforms have not succeeded in containing the growth of health-care spending and there has been a trend increase in the number of uninsured and underinsured. Recently there has been a spate of proposals for health-care reform, including from both the major 2008 Presidential candidates (Box 3.1), and some significant reforms have occurred at the state level.

Box 3.1. Some health-care reform proposals in the public domain

Health-care reform plans of the main 2008 presidential candidates

Mr. McCain (Republican)

The McCain proposals for health-care reform aim to reduce costs by strengthening market competition. By making health care more affordable, these reforms are intended to make health insurance more accessible. The main reforms envisaged entail:

- creating a uniform refundable tax credit (USD 2 500 for singles, and USD 5 000 for families) to replace the (open-ended) employment-based tax exclusion;
- allowing individuals and small groups to buy health insurance nationwide instead of just from companies in their own state, which would circumvent state legal requirements (mandates) on the content of insurance policies and the conditions under which they can be sold, such as the degree of experience-rating that is permitted;

Box 3.1. **Some health-care reform proposals in the public domain** (cont.)

- establishing a Guaranteed Access Plan in co-operation with states for individuals with pre-existing conditions who have been denied insurance;
- developing routes for cheaper generic versions of drugs to enter the US market, including allowing for re-importation of drugs;
- revamping Medicare payment systems to pay providers for diagnosis, prevention and care coordination without paying them for preventable medical errors or mismanagement;
- reforming medical liability laws to eliminate lawsuits for doctors that follow clinical guidelines and adhere to patient safety protocols, and to cap damages awards;
- increasing the focus on prevention, including through the use of drugs to manage conditions such as diabetes; and
- improving the quality of purchasing decisions by using data from digital medical records and from comparative effectiveness trials.

The McCain team does not provide cost estimates for these proposals.

Mr. Obama (Democrat)

The Obama health-care reform programme aims to achieve universal health insurance coverage, to reduce health-care costs, and to improve the functioning of the public health-care system. The centrepiece the programme is a package of measures to make insurance more affordable, by:

- creating a National Health Insurance Exchange with a range of private insurance options where individuals without company plans can buy a private or a new public plan based on the benefits available to members of Congress;
- establishing a minimum federal standard for the plans offered on the Exchange;
- requiring that all individual insurance plans be community rated (to prevent companies off the Exchange from selecting healthy patients, leaving only the unhealthy in the Exchange);
- giving tax credits (USD 110 billion-USD 120 billion) for low- and middle-income people to buy insurance; and
- considering the introduction of a legal requirement (mandate) to have insurance coverage once this system is up and running.

Such a reform programme should reduce administrative costs (mainly underwriting costs to reduce adverse selection risks). Other measures to improve the effectiveness of the health-care system in relation to costs include:

- increasing the focus on prevention, including through the use of drugs to manage conditions such as diabetes; and
- improving the quality of purchasing decisions by using data from digital medical records – USD 10 billion per year over five years has been set aside to put medical records online – and from comparative effectiveness trials.

The net cost of the whole plan after planned savings is estimated by the Obama team to be USD 50 billion-USD 65 billion per year. This would be paid for by allowing the tax cuts introduced by President Bush's administration for high-income households to lapse.

Box 3.1. Some health-care reform proposals in the public domain (cont.)**Health insurance reform proposals presented to the 110th Congress**

Many different pieces of health insurance legislation have been introduced to the 110th Congress (3 January 2007-3 January 2009). According to the Congressional Research Service (CRS, 2008), these reform bills have had a variety of primary objectives, including to:

- reduce the number of people without health insurance;
- reduce the reliance on health insurance for at least some part of needed medical care; and
- reduce the cost of health insurance.

The CRS (2008) classifies these reform bills into the following categories:

- National Health Insurance (i.e., a social insurance approach) or a National Health Service (universal coverage and reform of some or all factors of health-care production);
- expansion of existing public programmes [Medicare, Medicaid, and the State Children's Health Insurance Program (SCHIP)];
- Expansion of privately sponsored coverage, including proposals to:
 - ❖ expand employer-based health insurance;
 - ❖ expand the individual market for health insurance; and
 - ❖ improve the private market for health insurance;
- implementation of state-based reforms; and
- combinations of the above approaches.

More information about these proposals can be found in the CRS document www.cahc.net/RL34389.pdf.

This chapter begins with an examination of data on health status and health expenditure in the United States, in comparison with other OECD countries. The second section discusses access to health-care services in the United States. The third section looks at reforms to expand financial access to health care through private insurance while the final section considers Medicare reforms to improve value for money. Policy recommendations are summarised in the box at the end of the chapter.

Population health status is lower and health expenditure is higher than in many other OECD countries

Population health status is falling behind that in other developed countries

Population health status reflects performance of the health-care system amongst other factors. On the criteria of life expectancy, infant mortality and amenable mortality, for which we have reasonably reliable cross-country data, health status in the United States does not compare favourably with that in most other OECD countries. Other contributions of the health-care system to health status, such as quality of life associated with the reduction of symptoms and improved functional status are also important, as is the absence of waiting lists for elective surgery. Unfortunately, reliable data are not available to make cross-country comparisons on these aspects of health status, which could very well show the United States in a more favourable light.

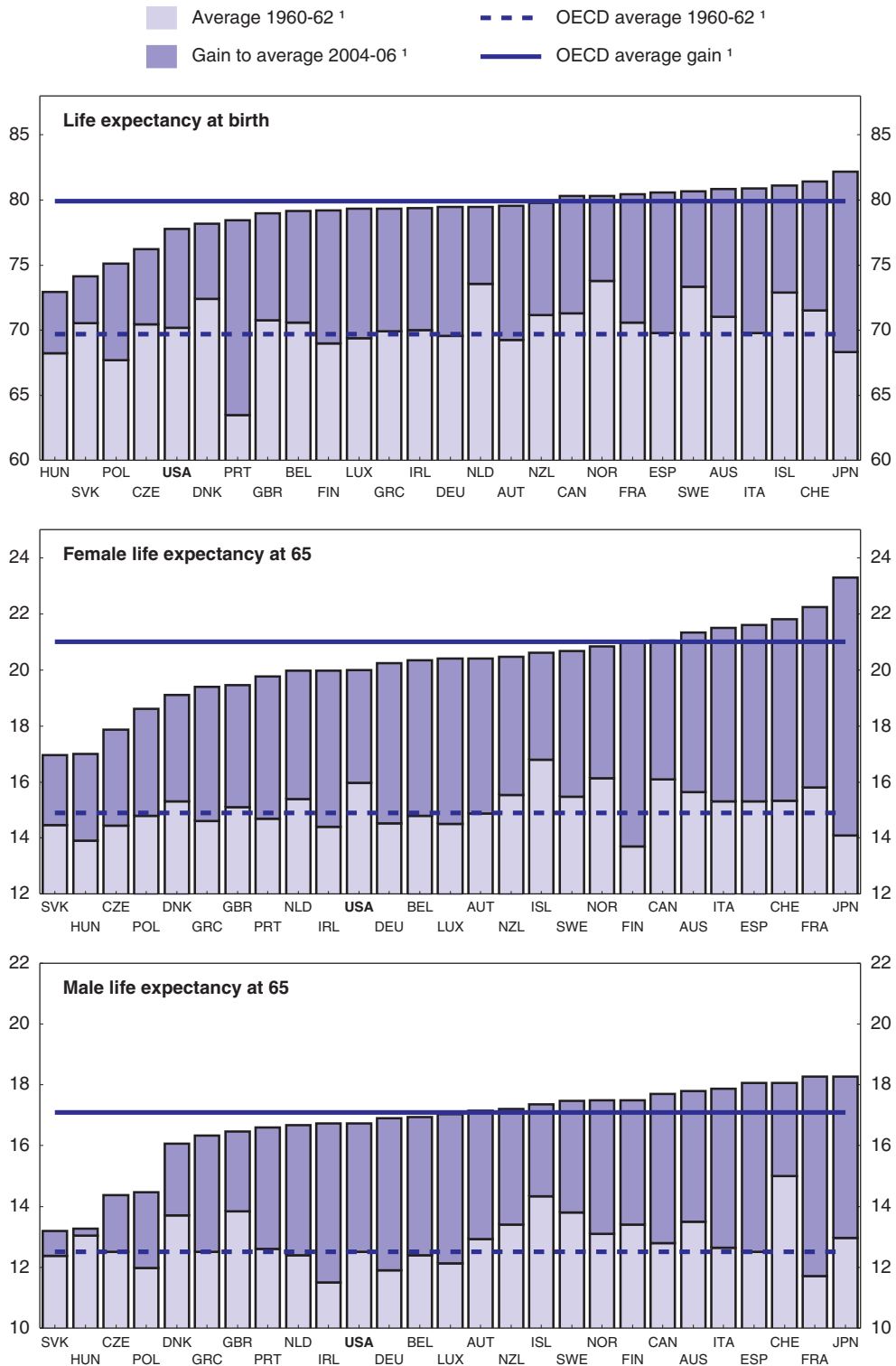
Life expectancy at birth has continued to rise markedly over recent decades, increasing in the United States from an average of 70.2 years in 1960-62 to an average of 77.7 years in 2003-05. This increase was smaller than in most other OECD countries, especially so for women, and as a result US life expectancy at birth fell from above the OECD average to below it (Figures 3.1, 3.2 and 3.3). While some of the difference in life expectancy between countries can be attributed to the probability of death from violence or accidents,¹ this factor does not appear to explain the lower increase in life expectancy in the United States. Potential years of life lost (PYLL) for persons aged less than 70, adjusted for non-health related causes of death,² have also declined by less in the United States (Figure 3.4). It should also be noted that these comparisons do not adjust for country-specific changes in demographic composition and differences in life style, which may also help to explain the pattern.

The increase in life expectancy in the United States at age 65 has also been less than the OECD average for both women and men, and since the early 1960s the US rank among OECD countries has fallen slightly for men but markedly for women. As in most other OECD countries, percentage gains in life expectancy at age 65 (33% for men and 25% for women in the United States *versus* OECD averages of 37% for men and 41% for women) have been considerably larger than at birth (12% for males and 10% for females in the United States *versus* OECD averages of 15% for both males and females).

Gaps in life expectancy between socio-economic groups have increased markedly in the United States in recent decades. Life expectancy at birth increased by 3.4 years between 1980-82 and 1998-2000 (to 79.2 years) for the least socioeconomically deprived tenth of the population, but by only 1.4 years (to 74.7 years) for the most socioeconomically deprived tenth of the population (Singh and Siahpush, 2006).³ At age 65, the gap in life expectancy for these two groups rose from 0.3 years in 1980-82 to 1.6 years in 1998-2000. The increase in this gap accounts for more than half of the rise in the gap in life expectancy at birth.⁴ This pattern of widening inequalities in life expectancy contrasts with that observed in the United States between 1930 and 1960 (Kitagawa and Hauser, 1973), and with the experience in urban Canada between 1971 and 1996 (Wilkins, Bathelot and Ng, 2002). On the other hand, socioeconomic inequality in life expectancy has also increased in Great Britain, other European countries and New Zealand in recent decades (Hattersly, 1999; Kunst *et al.*, 2004 and New Zealand Department of Health, Social Report, 2007). It is difficult to assess whether the gap in life expectancy between socioeconomic groups and its increase is large by international comparison because of differences in methodologies used in the various studies. The increasing inequality in life expectancy between socioeconomic groups runs counter to one of the main objectives of the US Department of Health and Human Services since 1990, namely to reduce and ultimately eliminate health inequalities among various segments of the US population, including those among gender, ethnic, socioeconomic and geographic groups; the other broad health goal for the nation seeks to increase life expectancy and quality of life among Americans of all ages (Singh and Siahpush, 2006, p. 969).

Another health status indicator that reflects the performance of the health-care system along with other economic and social factors⁵ is the infant mortality rate (*i.e.*, the rate at which babies of less than one year die). Like life expectancy, the infant mortality rate has also improved substantially in recent decades, falling from an average of 25.5 per thousand live births in 1960-62 to 6.9 per thousand live births in 2004-06 (Figure 3.5). Again, this reduction

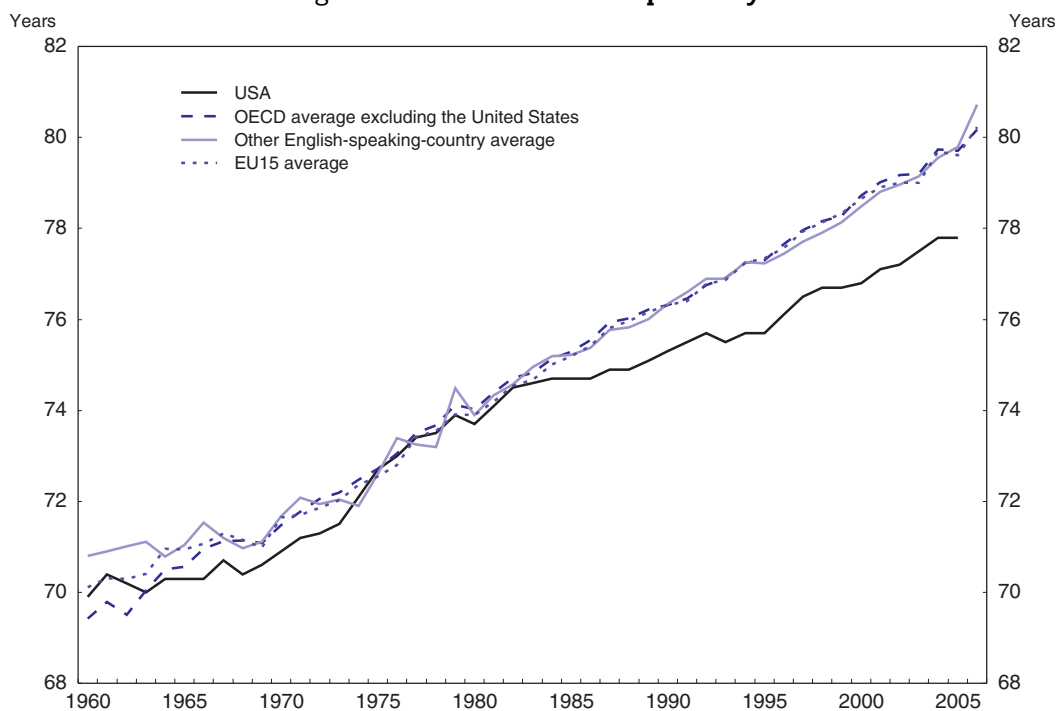
Figure 3.1. **Life expectancy**




StatLink <http://dx.doi.org/10.1787/488034505666>

1. Population weighted average of countries shown, excluding the United States. For Iceland, gains between 1963 and 2004-06 average.

Source: OECD Health Data (2008).

Figure 3.2. Trends in life expectancy¹

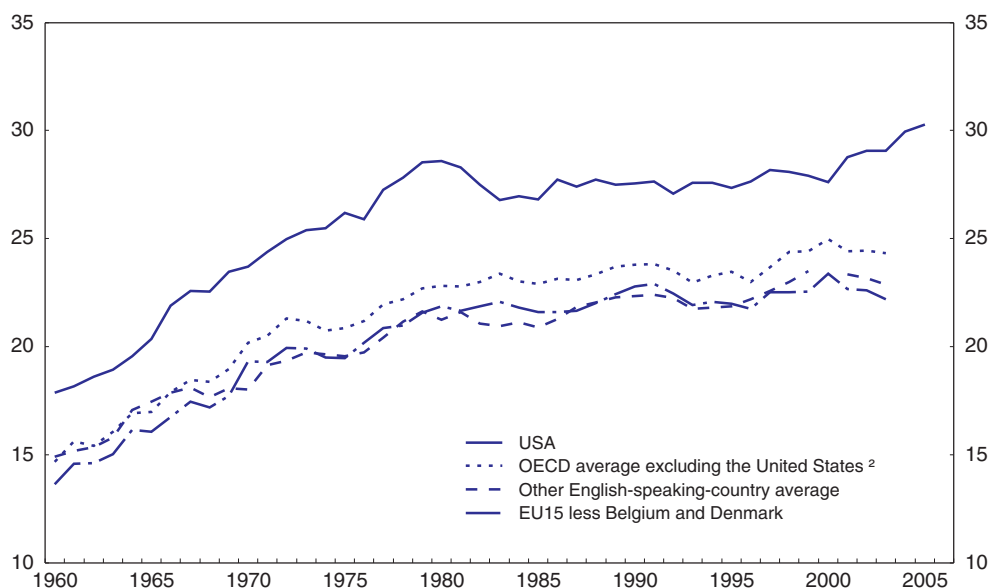
StatLink  <http://dx.doi.org/10.1787/488117545007>


1. Averages are population weighted. Also excludes Korea, Mexico, and Turkey.

Source: OECD Health Data (2008).

Figure 3.3. Premature mortality

Percentage of potential years lost attributable to external causes¹

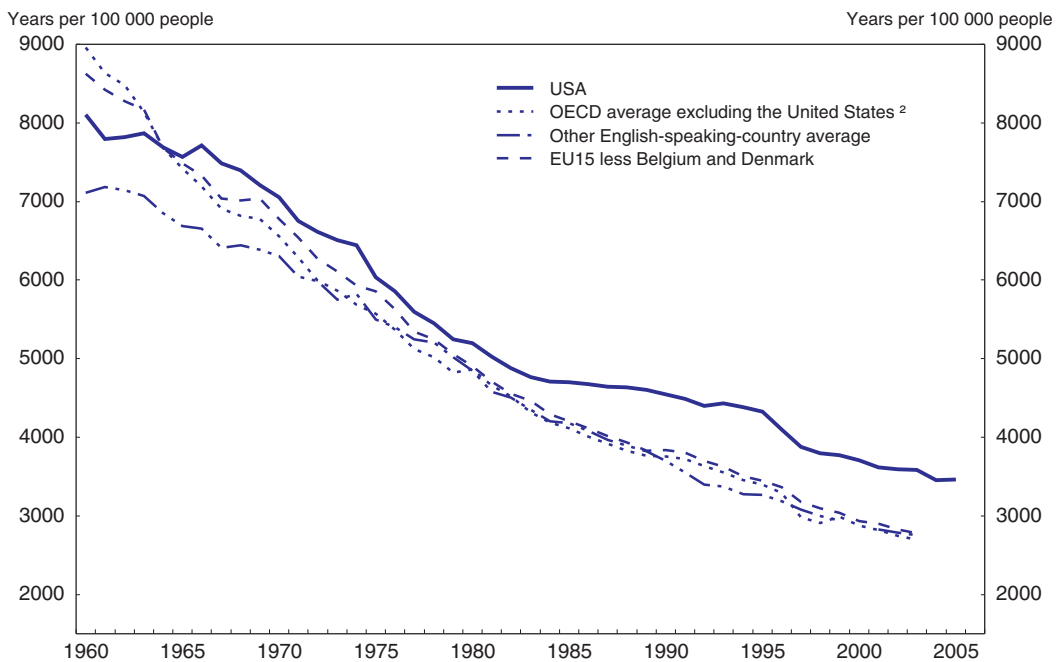



StatLink  <http://dx.doi.org/10.1787/488130200120>

1. Analysis for the population aged 0-69 years. Averages are population weighted. External causes include: land transport accidents; intentional self harm; accidental falls; and assaults.

2. OECD average excludes Belgium, the Czech Republic, Denmark, Korea, Mexico, the Slovak Republic, and Turkey in addition to the United States.

Source: OECD Health Data (2008).

Figure 3.4. Potential years of life lost adjusted for external causes¹

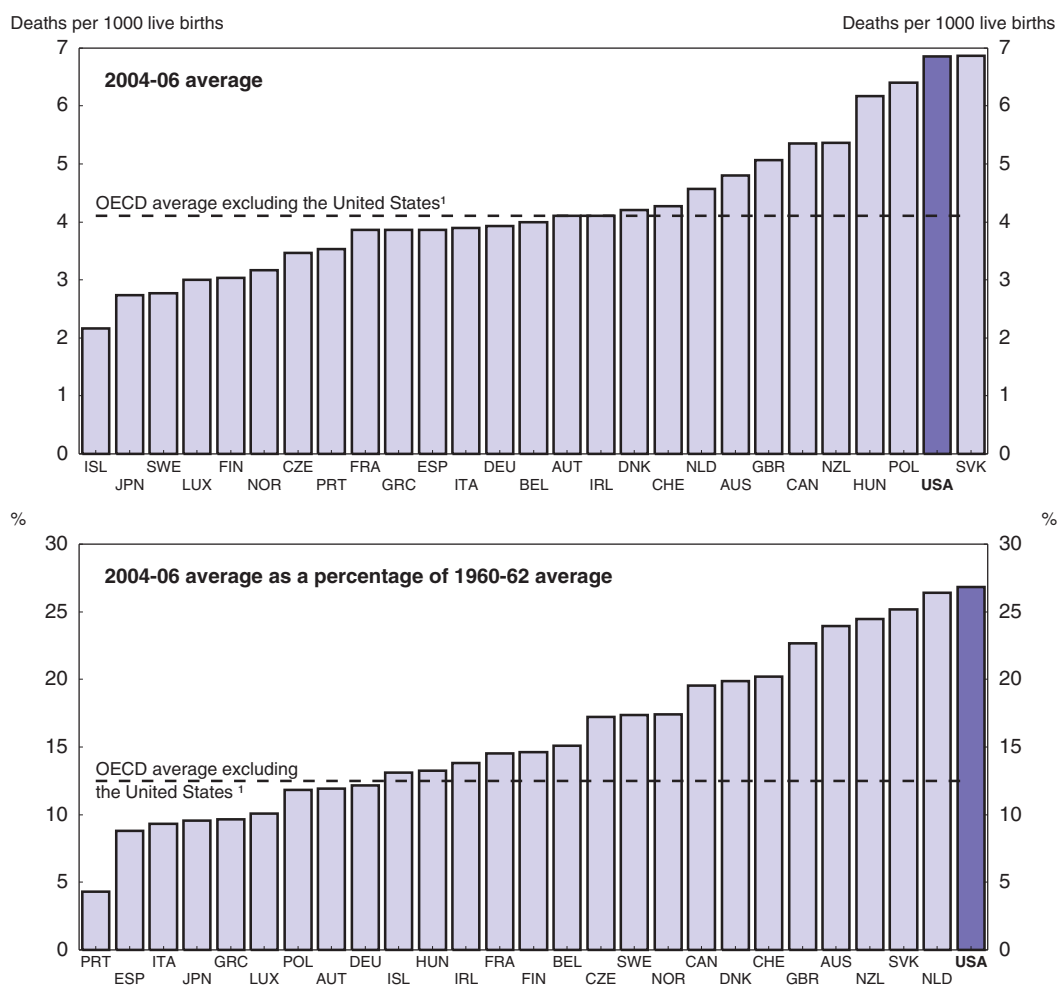
StatLink  <http://dx.doi.org/10.1787/488155715688>

1. Analysis for the population aged 0-69 years. Averages are population weighted. External causes include: land transport accidents; intentional self harm; accidental falls; and assaults.
2. OECD average excludes Belgium, the Czech Republic, Denmark, Korea, Mexico, the Slovak Republic, and Turkey in addition to the United States.

Source: OECD Health Data (2008).

is less than the OECD average, taking US infant mortality rates from below the OECD average to above it; US infant mortality rates are currently amongst the highest in the OECD.

A factor to bear in mind when interpreting these mortality rates is that part of the international variation may be attributable to differences amongst countries in registering practices of premature infants (whether they are reported as live births or foetal deaths) (OECD, 2007). In the United States, as well as in Canada, Japan, and the Nordic countries, very premature babies with relatively low odds of survival are registered as live births, a practice that increases mortality rates compared with countries that do not register them as live births. Nevertheless, infant mortality has also declined more in all of the countries with the same registration practices as the United States, and has fallen to much lower levels than in the United States. Even if there were uniform reporting standards of infant mortality across countries, a second limitation to using it as an indicator for health outcomes is the potential effect of certain interventions on the likelihood of a live birth. It is conceivable that additional health care provided in the second or third trimester causes a pregnancy that would almost assuredly be a stillborn to become a pregnancy with an improved chance of a live birth but also an above-average likelihood of dying within the first year. These interventions increase health care expenditures and result in the birth of more low-weight- and very low-weight babies, with significantly greater health problems. It is not clear whether or not this factor helps to explain the apparent smaller decline and higher rates of infant mortality in the United States than in other countries. In addition to the above caveats, there may be other factors, including the mother's behaviour

Figure 3.5. **Infant mortality rates**

StatLink <http://dx.doi.org/10.1787/488178026564>

1. OECD average is population weighted and excludes Korea, Mexico, and Turkey in addition to the United States.
Source: OECD Health Data (2008).

(e.g., smoking) and demographic factors (e.g., teen births), that are changing over time and contribute to the observed pattern of infant mortality that are independent of health-care system efficacy.

The United States also appears to be lagging other countries in reducing “amenable mortality” – deaths from certain causes that should not occur in the presence of timely and effective health care. Nolte and McKee (2008) examine recent trends in deaths from treatable conditions and find that while the United States was comparable to other OECD countries in 1997-98, it ranked near the bottom in 2002-03. The authors note, however, several potential data and measurement issues when comparing aggregate data across countries, including differences in interpretation regarding the concept of amenable mortality and reporting issues relating to conversion to the ICD-10⁶ system. The authors also find large regional differences in amenable mortality. They estimate that if all states achieved levels seen in the best-performing state, about 90 000 premature deaths could be avoided annually, compared with 101 000 if the United States were to achieve levels of

amenable mortality seen in the three top-performing countries. They also note that US underperformance on this measure has coincided with an increase in the uninsured population (see below).

Health expenditures are high and rising quickly

Health expenditures per capita in the United States are by far the highest among OECD countries (Figure 3.6). The public share of health expenditure (46%) is much lower than in any other OECD country, except Mexico, but nevertheless public health expenditure per capita is higher than in most other OECD countries.⁷ For this amount of expenditure in the United States, government provides insurance coverage only for the elderly and disabled (through Medicare, which primarily insures persons aged 65 or over and individuals with disabilities and end-stage renal disease) and some of the poor [through Medicaid and the State Children's Health Insurance Program (SCHIP)], whereas in most other OECD countries this is enough for government to provide universal primary health insurance.

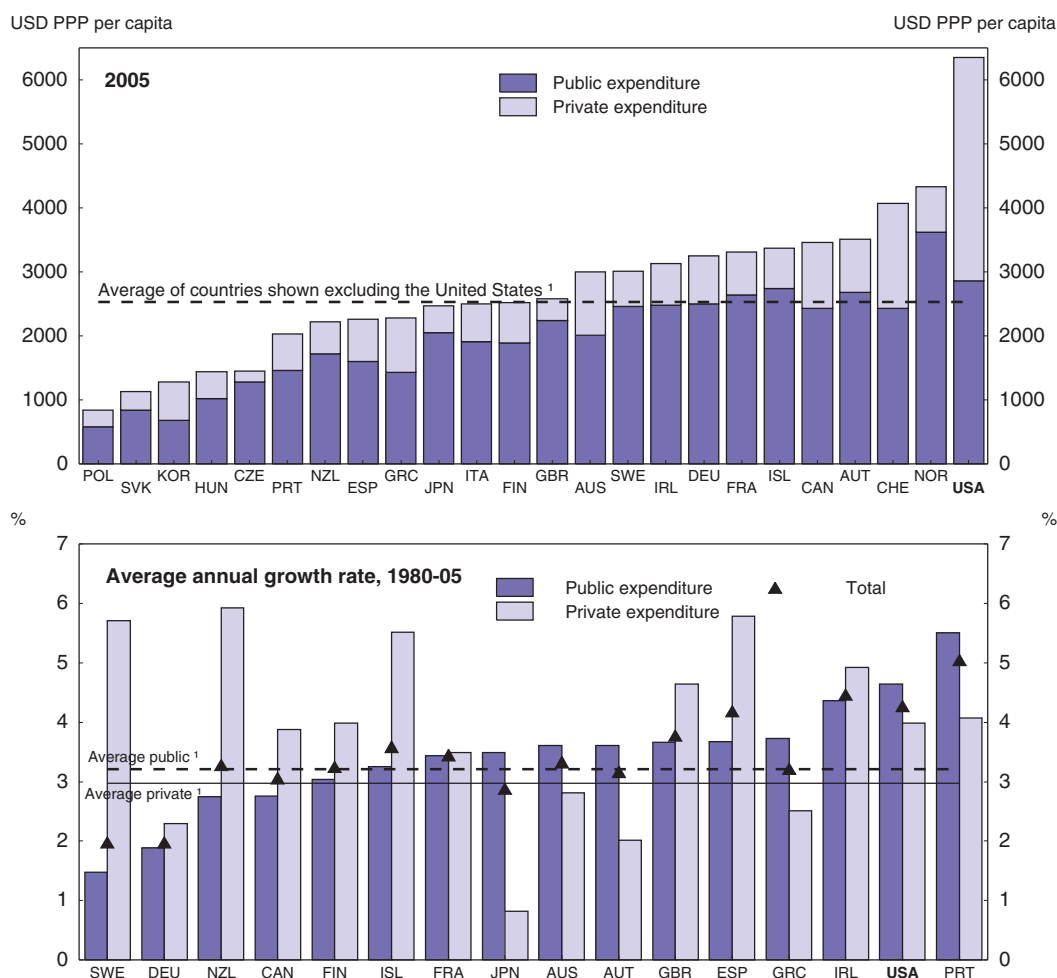
Real growth in health expenditure per capita over the past quarter century has also been considerably higher in the United States than in most other OECD countries (see Figure 3.6). Growth in public health expenditures was somewhat higher in the United States than in private health expenditures, because of one-time savings in private health insurance from the shift to managed care in the form of Health Maintenance Organisations (HMOs) and Preferred Provider Organisations (PPOs). Health expenditure per capita across OECD countries is positively related to GNI per capita (Figure 3.7). However, higher income levels in the United States only explain part of its high health spending.

High health expenditure in the United States may partly reflect high relative prices for health-care services

It is difficult to judge whether the high level of health expenditures in the United States mainly reflects high volumes of health-care services or high relative prices for health care – satisfactory purchasing power parity exchange rates for health-care services are unavailable. Nevertheless, the crude indicators of health-care service volumes that are available point to volumes in the United States not being out of line with those in other OECD countries, suggesting that high prices may be a factor contributing to high expenditures (Tables 3.1, 3.2, 3.3).⁸ Physician density is below the OECD median, as are physician visits per capita, while nurse density is slightly higher and hospital use is clearly lower. On the other hand, the availability and use of sophisticated medical technologies is significantly higher than in most other countries, except Japan (which has lower per capita health-care spending than the United States). Physician incomes relative to GDP per capita are high by international comparison, lending support to the view that high prices contribute to high expenditures in the United States. The relatively high physician incomes in the United States are likely mainly to reflect the relatively high compensation for professionals in general compared with that in other countries.

Likewise, pharmaceutical drug prices appear to be higher in the United States than in other OECD countries. Danzon and Furakawa (2008) find that price indexes of drugs in 12 countries indicate that foreign prices are up to 20% lower than public prices in the United States, even though prices of generic drugs are higher. This pricing pattern probably reflects the price controls imposed in many countries, but not in the United States, where the authorities do not interfere in the determination of drug prices in either non-public

Figure 3.6. Health expenditures per capita



StatLink  <http://dx.doi.org/10.1787/488218808202>

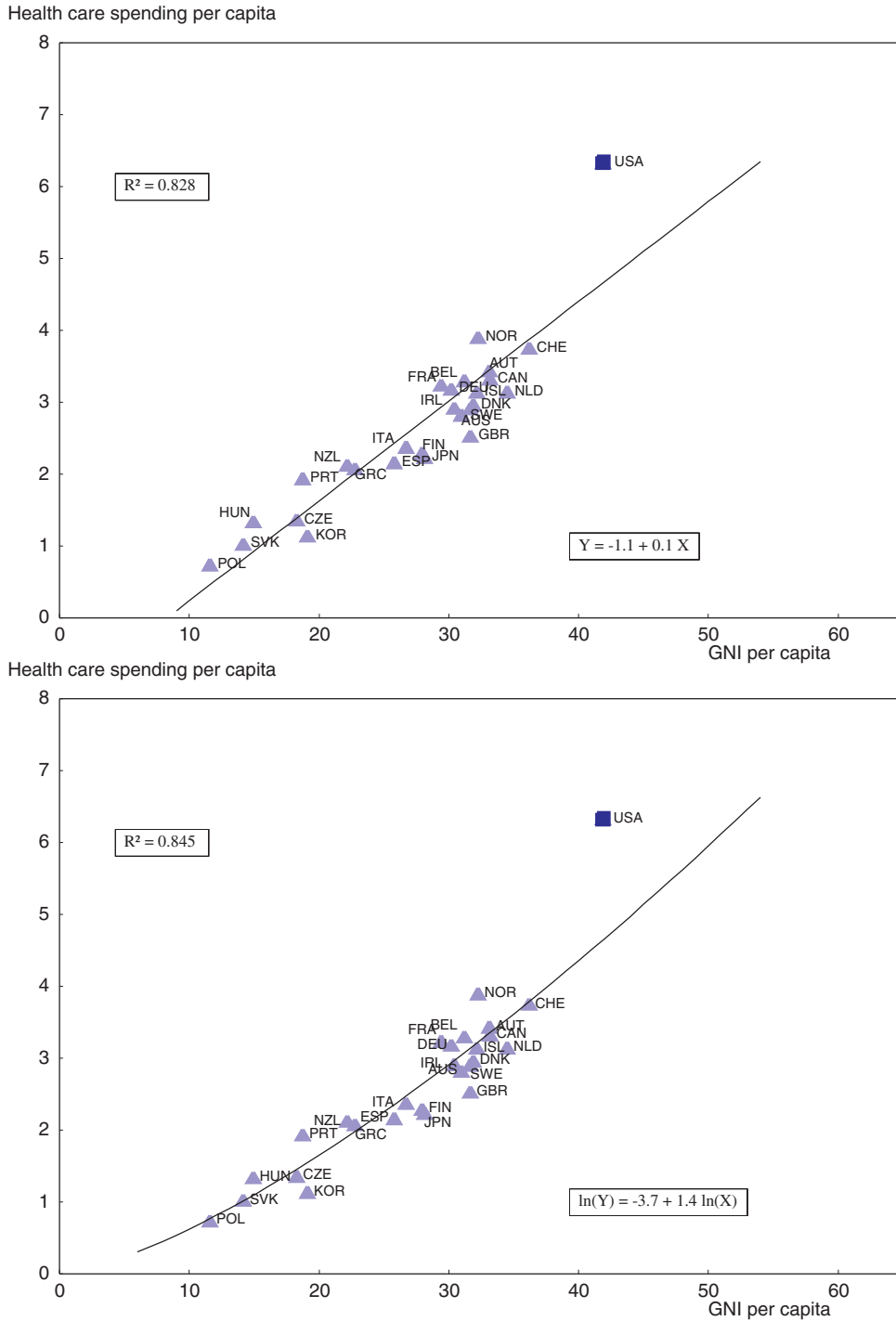
1. Averages are population weighted.

Source: OECD Health Data (2008).

programmes or Medicare (Part D).⁹ It might also, however, reflect less price elastic demand in the United States and, therefore, price discrimination by monopolistic (owing to patent protection) drug manufacturers. Either way, the relatively high prices paid for patented drugs in the United States strengthen incentives for the development of more effective drugs, which also benefit patients in other (notably OECD) countries.

High health expenditures in the United States may also reflect to some extent high costs beyond those strictly related to the delivery of health-care services. Angrisano et al. (2007) estimate that US health expenditure in 2005 was USD 477 billion (out of a total of USD 1.9 trillion) higher than in peer countries (Japan, Germany, France, Italy, Spain, and the United Kingdom) after adjusting for GDP per capita and that 36% of this amount was attributable to higher intermediation costs¹⁰ (USD 98 billion) and to higher profits and taxes on them (USD 75 billion).

Figure 3.7. **Health expenditure in relation to GNI per capita, 2005¹**
 Thousand of USD PPP



StatLink <http://dx.doi.org/10.1787/488220140141>

1. These figures display GNI per capita with respect to real total health spending per capita. They exclude Luxembourg, Mexico, and Turkey. The data point for Norway displays mainland GNI per capita. The non-linear regression line in the second panel suggests that health spending may increase more than proportionally with rising income.

Source: OECD, Health data (2008).

Table 3.1. Health-care workforce per 1 000 population and physician incomes, 2006

	Per 1 000 population				Income ratio to GDP per capita			
	Physicians	Practicing specialists	Practicing GPs	Nurses	Specialists		General practitioners	
					Salaried	Self employed	Salaried	Self employed
Australia	2.8 ¹	1.3 ¹	1.4 ¹	9.7 ¹	...	5.2 ¹	...	2.5 ¹
Austria	3.6	2.1	1.5	7.3	...	7.4	...	3.4 ³
Belgium	4.0	2.0	2.1	14.8	...	7.6	...	2.4
Canada	2.1	1.1	1.0	8.8	...	4.9 ¹	...	3.2 ¹
Czech Republic	3.6	2.8	0.7	8.1	...	2.3 ¹	...	1.8 ¹
Denmark	3.6 ²	2.3 ²	0.8 ²	15.3	2.8 ¹	...	1.8	...
Finland	2.7	1.6	0.7	8.3	2.6	4.8	...	2.8
France	3.4	1.7	1.7	7.6	...	4.5	...	3.6
Germany	3.5	2.5	1.0	9.8	...	...	...	...
Greece	5 ¹	3.3 ¹	0.3 ¹	3.3 ¹	2.6 ¹	2.7 ²	...	...
Hungary	3.0	2.1	0.7	6.1	1.7	...	1.6	...
Iceland	3.7	2.2	0.7	13.7	2.9 ¹	...	3.0 ¹	...
Ireland	2.9	0.8	0.5	15.4	4.0	...	...	4.3
Italy	3.7	...	0.9	7.1	...	...	...	...
Japan	2.1	...	...	9.3	...	...	...	...
Korea	1.7	1.1	0.6	4.0	...	...	...	...
Luxembourg	2.8	2.0	0.8	16.0	2.3 ¹	3.5 ¹	1.6 ¹	1.8 ¹
Mexico	1.9	1.3	0.6	2.3	3.6	8.4	3.3	...
Netherlands	...	0.7	0.5	8.6	3.8	8.3	...	3.4
New Zealand	2.3	0.8	0.8	10.0	3.6	...	...	...
Norway	3.7	2.1	0.8	31.6	1.5	...	...	...
Poland	2.2	1.8	0.1	5.1	...	...	...	...
Portugal	...	1.7 ¹	1.7 ¹	4.6 ¹	3.3 ¹	...	...	...
Slovak Republic	3.1 ²	2.3 ²	0.4 ³	6.3 ²	...	...	...	...
Spain	3.6	1.9	0.9	7.3	...	...	...	...
Sweden	3.5 ¹	2.5 ¹	0.6 ¹	10.7 ¹	2.5 ⁴	...	2.2 ⁴	...
Switzerland	3.8	2.7	0.5	14.1 ¹	...	3.7 ²	...	3.2 ²
Turkey	1.6	0.8	0.8	2.1	...	...	...	...
United Kingdom	2.5	1.7	0.7	11.9	4.8 ²	...	...	5.4 ¹
United States	2.4	1.5	1.0	10.5	4.8 ⁵	6.5 ⁵	3.8	4.4 ⁵
Median	3.1	1.9	0.8	8.7	...	...	...	...

1. 2005.

2. 2004.

3. 2003.

4. 2002.

5. 2001.

Source: OECD Health Data (2008).

Table 3.2. **Health Services capacity and use, 2006**

	Physician visits per capita	Acute care beds per 1 000 population	Average length of hospital stay (days)	Acute care hospital days per capita
Australia	6.1	3.5 ¹	17.2 ¹	1.0 ¹
Austria	6.7	6.1	6.8	1.8
Belgium	7.5 ¹	4.3	8.0 ¹	1.2 ²
Canada	5.9 ¹	2.8 ¹	...	0.9 ¹
Czech Republic	12.9	5.4	10.5	1.7
Denmark	7.5 ²	3.1 ¹	5.3	1 ³
Finland	4.3	3.1	9.9 ¹	0.9
France	6.4	3.7	13. ²	1.0
Germany	7.0 ²	6.2	10.1	1.7
Greece	...	3.9 ¹	7.8 ²	1
Hungary	12.9	5.5	7.9	1.5
Iceland	6.3	...	...	...
Ireland	...	2.8 ¹	7.6 ¹	0.9 ¹
Italy	7.0 ¹	3.3	7.4 ¹	0.9 ¹
Japan	13.7 ¹	8.2	34.7	2.0
Korea	11.8 ¹	6.8	13.5 ⁴	...
Luxembourg	6.0	4.6	...	1.3
Mexico	2.5 ²	1.0	4.1	0.4
Netherlands	5.6	3.0	12.5 ⁵	0.7
New Zealand	3.2 ⁴	...	6.9 ⁴	0.4 ⁶
Norway	...	3.0	7.7	0.9
Poland	6.6	4.7	7.2	1.4 ⁷
Portugal	3.9 ¹	3.0 ¹	8.7 ¹	0.8 ¹
Slovak Republic	10.4	4.9	9.0	1.2
Spain	8.1	2.5 ¹	8.5 ¹	0.8 ¹
Sweden	2.8	2.2	6.1	...
Switzerland	3.4 ⁷	3.5	11.3	1.1
Turkey	3.1 ²	2.5	5.1	0.4 ⁷
United Kingdom	5.1	2.2	8.7	0.9
United States	4.0 ¹	2.7	6.4	0.7
Median	6.3	3.4	8	1

1. 2005.

2. 2004.

3. 1999.

4. 2003.

5. 2001.

6. 1997.

7. 2002.

Source: OECD Health Data (2008).

Health expenditures are likely to continue to rise quickly

Health expenditures are likely to continue to increase rapidly. The Office of the Actuary in the Centers for Medicare and Medicaid Services projects that health expenditures will increase from 15% of GDP currently to 19.5% of GDP by 2017 (Keehan et al., 2008). Looking further ahead, the Congressional Budget Office projects that health expenditures will increase to 31% of GDP by 2035, to 41% by 2060, and to 49% by 2082 (CBO, 2007a). Spending a rising share of income on health, as has occurred in the United States and other developed countries and is likely to continue occurring, makes economic sense as rising incomes increase the relative benefits of investing in health-care consumption to extend life (Hall and Jones, 2004); the elasticity of health expenditure per capita (in USD PPP) with respect to GNI per capita (in USD PPP) across OECD countries is 1.4, further

Table 3.3. **Availability and use of sophisticated medical technologies, 2006**

	Per million population		Per 100 000 population	
	MRI units	CT scanners	Coronary angioplasties	Patients undergoing dialysis
Australia	4.9	51.1 ¹	0.4	44.6
Austria	16.8	29.8	0.7	46.9
Belgium	7.1	39.8	0.7 ¹	60.0 ¹
Canada	6.2	12.0	0.5	62.8
Czech Republic	3.8	13.1	0.6	57.3
Denmark	10.2 ²	15.8	0.5	46.8 ¹
Finland	15.2	14.8	0.3	28.8
France	5.3	10.0	0.6	59.1
Germany	7.7	16.7	0.5	80.1
Greece	13.2 ¹	25.8 ¹	0.1 ¹	75.4 ²
Hungary	2.6	7.2	0.1 ¹	54.1 ¹
Iceland	19.7	26.3	0.0	16.8
Ireland	9.7	12.8	0.3	35.4
Italy	15.0 ¹	27.7 ¹	0.6	71.3 ¹
Japan	40.1 ¹	92.6 ³	0.0	207.0
Korea	13.6	33.7	0.1	73.7 ²
Luxembourg	10.9	28.3		47.4
Mexico	1.4	3.6	0.0	42.5
Netherlands	6.6 ¹	8.2 ¹	0.2 ²	32.2 ¹
New Zealand	3.7 ⁴	12.1 ²	0.5	47.6
Norway	...	...	...	...
Poland	1.9	9.2	0.3	...
Portugal	5.8	25.8	0.4	83.5 ¹
Slovak Republic	4.5	12.1	0.2	53.5
Spain	8.8	13.9	0.6	48.5
Sweden	7.9 ⁵	14.2 ⁵	0.5	...
Switzerland	14.0	18.7	0.4 ¹	...
Turkey	3.5	7.8	0.1	46.1 ⁷
United Kingdom	5.6	7.6	0.3	38.9
United States	26.5	33.9	0.7	114.7 ¹
Median	7.7	14.8	0.4	51.0

1. 2005.

2. 2004.

3. 2002.

4. 2003.

5. 1999.

Source: OECD Health Data (2008).

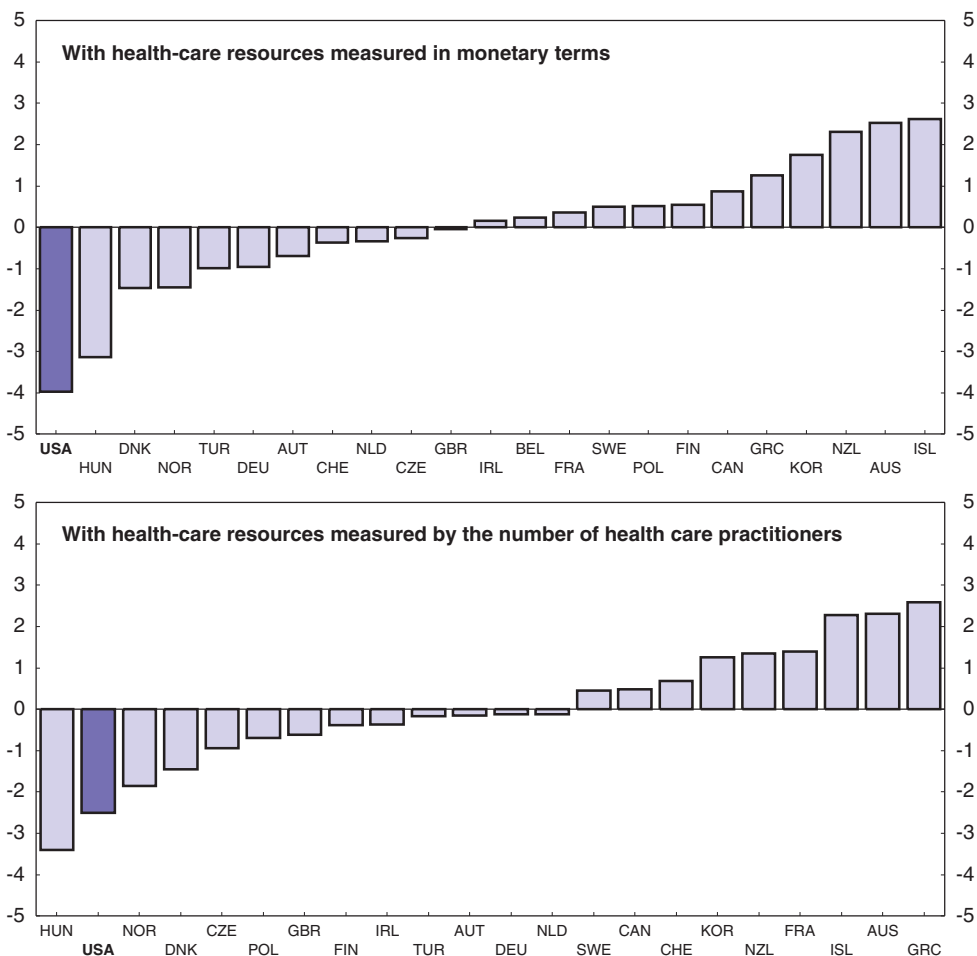
supporting the view that health-care consumption is a superior good (see Figure 3.7, second panel). The large and growing size of health spending underscores the importance of ensuring that the sector functions efficiently and equitably.


Efficiency of the health-care system – health status in relation to inputs

While US health spending seems out of proportion to the gains in terms of indicators such as life expectancy, many other factors affect health status, and health expenditure may not have a significant impact on life expectancy, being more relevant for reducing morbidity (Fogel, 2004), which, as noted above, is also an important objective of health-care systems. Joumard *et al.* (2008) explore other factors that might affect life expectancy at birth using a panel regression of OECD countries. They find that health spending, education attainment, tobacco consumption, alcohol consumption, diet, pollution and

GDP all have a significant impact on life expectancy at birth; the same is true for other measures of health status – life expectancy at age 65, adjusted premature mortality, and infant mortality – except that diet does not have a significant impact on either adjusted premature mortality or infant mortality. Actual US life expectancy at birth is lower than what is predicted by this model (Figure 3.8). This suggests that there are other unobserved factors that may influence this health outcome. These might include growing disease prevalence, obesity, or even measurement issues relating to live births. It is also possible that these unobserved factors may reflect a less effective health-care system. However, health expenditure may not be an accurate reflection of resource inputs because, as discussed above, evidence suggests that high spending partly reflects prices rather than quantities of inputs. Joumard *et al.* (2008) repeated their analysis using health practitioner numbers to proxy resource inputs and data envelopment analysis, and found a somewhat lower relative underperformance of the US health-care system, but also still some unexplained ineffectiveness.

Figure 3.8. **Panel regressions: Years of life which are not explained by the general model**
2003



StatLink  <http://dx.doi.org/10.1787/488238670437>

Source: Joumard I., C. André, C. Nicq and O. Chatel (2008), "Health Status Determinants; Lifestyle, Environment, Health Care Resources and Efficiency", OECD Economic Department Working Paper No. 627.

Higher prevalence of costly chronic health conditions in the United States than in other countries

A factor that may help to explain the apparent relative underperformance of the US health-care system is the much higher prevalence of chronic health conditions in the United States than in other countries, at least insofar as this reflects the underlying population health status as opposed to screening rates. Thorpe, Howard, and Galactionova (2007) find that disease prevalence and treatment rates for ten of the most costly conditions¹¹ are much higher in the United States than in 10 European countries, based on surveys of the non-institutionalised population aged 50 or over. The much higher obesity rates and higher proportion of this age group that smokes or has smoked in the United States than in the other countries are likely to have contributed to higher prevalence rates of these costly conditions in the United States. Thompson and Wolf (2001) estimate that 5-7% of total health-care costs in the United States in the late 1990s could be attributed to obesity, compared with 2-3.5% in other countries such as Canada, Australia and New Zealand (where data collection methodologies are the same as in the United States).¹² The cost of health-care services is estimated to be 36% higher for obese people than for normal weight people in the United States and the cost of medications to be 77% higher (Sturm, 2002). On the other hand, Angrisano *et al.* (2007) find that the total US population is not much sicker than the populations in other advanced countries and that this factor accounts for a minor part of the excess in health expenditure in the United States compared with the other countries in their study.¹³ Another factor that contributes to higher US health expenditure levels, but which may improve outcomes, is that the US medical system tends to screen for disease more aggressively than in many other countries and to treat less severe cases of disease (Thorpe, Howard, and Galactionova, 2007). For example, these authors conclude that more intensive screening in the United States contributes to the higher prevalence of (diagnosed) cancer there, but also that mortality rates from cancer tend to be lower.

Overutilisation of procedures and technologies

Another issue of concern is the extensive variation in the application of procedures and technologies geographically, for which there does not appear to be any association with health outcomes. The Dartmouth Atlas of Health Care provides extensive data to illustrate the large variations in utilisation of treatments among Medicare beneficiaries. For instance, Skinner, Staiger and Fisher (2006) examine variation in the costs and survival gains across regions in the United States and find that increased spending on the treatment of heart attacks is not associated with comparable increased benefits. This factor may be more important in the United States than in other countries owing to the greater utilisation of new technologies and weaker controls on their use than in systems with single payers.

Such findings do not, however, imply that treatments, even new and expensive ones, are globally inefficient. On the contrary, three recent studies suggest that, on average, the increases in associated life expectancy outweigh the costs. Cutler and McClellan (2001) examined the costs and benefits of advances in the treatment of heart attacks and advances in the treatment of low birth-weight babies and concluded that the benefits significantly exceeded the costs. Cutler (2007) updated this work on the technological improvements in revascularisation following a heart attack and found that costs of about USD 40 000 were outweighed by the greater than one-year increase in life expectancy,

valued at about USD 100 000 per year. Likewise, Murphy and Topel (2006) found that the gains from reductions in mortality from investments in medical research and development greatly outweighed the costs, even after allowing for the socially wasteful use of such technologies induced by distorted *ex post* utilisation incentives (arising from the prevalence of third-party payer arrangements and the availability of many public and private pension benefits as annuities).

The costs of medical malpractice insurance and of defensive medicine

In the United States, malpractice awards can be enormous, and certainly much greater than in most other countries. This risk encourages physicians to practice defensive medicine, prescribing tests to rule out potential health problems with a low probability of occurring. It also drives up the cost of buying professional liability insurance,¹⁴ and hence providers' cost of doing business. Based on data for elderly Medicare beneficiaries treated for serious heart conditions in 1984, 1987, and 1990, Kessler and McClellan (1996) found that malpractice reforms that directly reduced provider liability pressure led to reductions of 5-9% in medical expenditure, potentially reflecting both the practice of less defensive medicine and lower professional liability insurance costs, without substantial effects on mortality or medical complications. They concluded that professional liability reforms do indeed reduce the practice of defensive medicine.

A growing proportion of the population is underinsured

A growing proportion of the population is uninsured

The United States is one of only three OECD countries – the other two are Mexico and Turkey – that do not have universal health insurance coverage. The number of persons without health insurance has increased significantly in recent years, from 38 million (14% of the population) in 2000 to 46 million (16% of the population) in 2007.¹⁵ This increase mainly reflects developments in the non-elderly adult population (aged 18-64), as the number of uninsured children has been broadly stable owing to the expansion of the State Children's Health Insurance Program (SCHIP),¹⁶ and almost all older people (over 65) are insured with Medicare. The large increase in the number of uninsured adults is largely attributable to employers – particularly smaller ones – being less likely to offer health insurance coverage to their workers (Clemens-Cope and Garret, 2007).¹⁷ At least three-quarters of the uninsured are not offered health insurance by an employer¹⁸ (Gruber, 2008). Part-time employees do not generally have access to employer-sponsored health insurance, which would be very costly in relation to their overall labour compensation.

The absence of health insurance is much more prevalent among low-income groups than high-income groups (Table 3.4). Some 48% of households with incomes less than twice the poverty threshold (less than USD 40 000) were uninsured at some point during 2007, while for households with higher incomes than this the rate was 16%. The uninsured rate drops steadily as household income rises, to 9% for households with incomes four times or more the poverty rate. Households with adults who are in fair/poor health and/or have certain chronic health conditions are more likely to be uninsured than healthier adults. Younger adults are more likely to be uninsured than older adults.

Rapidly increasing health-care costs have pushed up health insurance premiums and reduced the number of people privately insured, despite the growing risk of being exposed to large losses (Kronick and Gilmer, 1999; Chernew, Cutler, and Keenan, 2005); health

Table 3.4. Adults aged 19-64 who were uninsured or underinsured, by various characteristics

Characteristic	2003			2007		
	Insured, all year, not underinsured (n = 2.031)	Underinsured (n = 310)	Uninsured during the year (n = 952)	Insured all year, not underinsured (n = 1.535)	Underinsured (n = 334)	Uninsured during the year (n = 747)
All adults, millions	110.9	15.6	45.5	102.3	25.2	49.5
All adults, per cent	65%	9%	26%	58%	14%	28%
Age (years)						
19-29 (%)	51	9	40	41	13	46
30-49 (%)	66	8	26	61	12	27
50-64 (%)	74	11	15	65	18	17
Sex						
Male	67	6	27	61	13	27
Female	62	12	26	55	16	29
Race						
White, non-Hispanic	70	9	21	60	16	24
Black non-Hispanic	54	9	37	51	17	31
Hispanic	44	9	47	49	6	45
Income ¹						
Less than USD 20 000	31	17	53	24	26	50
USD 20 000-USD 39 999	47	17	35	41	19	41
USD 40 000-USD 59 999	79	5	16	69	13	18
USD 60 000-USD 99 999	91	4	6	82	9	9
USD 100 000 or more	96	1	2	87	7	6
Poverty status (per cent of poverty)						
Under 100%	28	17	55	21	31	49
100%-199%	35	21	44	33	19	48
200% or more	83	4	13	73	11	16
200%-299% ²	...	...	...	53	16	31
300%-399% ²	...	...	...	70	13	16
400% or more ²	...	...	...	84	8	9
Health status						
Healthier	69	7	24	64	11	25
Sicker ³	57	13	30	50	18	32

1. In 2003 the categories were "less than USD 20 000"; "USD 20 000-USD 34 999"; "USD 35 000-USD 59 999", and "USD 60 000 or more".

2. The 2003 survey did not collect income data that were detailed enough to report these poverty groups.

3. Includes adults in fair/poor health, any one of five conditions (high blood pressure, heart disease, lung disease, diabetes, or asthma), or disability. (In 2003 it also included cancer, arthritis, and high cholesterol but not lung disease or asthma.)

Source: Commonwealth Fund Biennial Health Insurance Surveys, 2003 and 2007.

insurance premiums increased at an annual average rate of 10.3% over 2000-07, while average workers' earnings (excluding non-wage benefits, such as employer contributions to health insurance premiums or costs) only rose at an annual average rate of 3.1% (The Kaiser Family Foundation and Health Research and Education Trust, 2007). For poorer persons, out-of-pocket premiums represent a considerably higher proportion of household income than for higher-income persons, suggesting that as premiums rise, ever more households are unable to afford them.

There is a wide variety of estimates of the proportion of the uninsured population that is able to afford insurance. At the low end, Dubay *et al.* (2006) estimate that less than one fifth of the uninsured population is able to afford insurance, defining the affordability

threshold as household income of 300% of the federal poverty level (annual income in 2004 of USD 28 935 for a single person and USD 57 921 for a family of four). At this level of income, average premiums¹⁹ would be about 14% of income for a single person and 17% of family income for a family of four, with premiums representing a higher share of income at lower income levels and a lower share at higher income levels. At the high end, Bundorf and Pauly (2006) estimate that almost 60% of the uninsured in 2000 could afford insurance in the base case, which assumes that insurance is affordable if at least half of the population in similar circumstances is insured, allowing for financial resources, loading²⁰ and health status.

The uninsured are protected to some extent as hospitals that treat Medicare patients and non-profit hospitals are obliged to provide medical care to any such person who comes to the emergency room with an emergency medical condition²¹ to stabilise it, as well as by the free care provided by hospitals and other providers. If the uninsured are unable to pay for treatment, they can declare bankruptcy and not pay. Hospitals are protected from the costs of treating these uninsured patients. The federal government, through the Medicare and Medicaid disproportionate share adjustments, provides subsidies to hospitals that treat a large number of uninsured individuals. Total payments under these two programmes in fiscal year 2008 exceeded USD 18 billion. Additional subsidy payments to hospitals – including medical education payments and capital payments – are also available to hospitals through the Medicare programme. Moreover, non-profit hospitals (the vast majority of hospitals in the United States) receive tax subsidies in exchange for agreeing to be organised and operated exclusively for charitable purposes. In all, state and federal governments reimburse 85% (USD 35 billion in 2004) of the costs of uncompensated care²² (Hadley and Holahan, 2004). Herring (2005) finds that these alternatives reduce the purchase of private health insurance coverage.

Despite the existence of the safety net and government payments for uncompensated care, uninsured persons receive much less health care than the rest of the population, with adverse consequences for their health. Health expenditures per capita for the uninsured are roughly half of those for the fully insured (Hadley and Holahan, 2004). Uninsured persons are less likely to receive preventative and screening services, less likely to receive appropriate care for chronic conditions, and are more likely to die from cancer, largely because such persons tend to be diagnosed when it is more advanced (Bernanke, 2008; Institute of Medicine, 2002). The uninsured also receive inferior treatment. For example, Doyle (2005) found that uninsured victims of car accidents received 20% less treatment in hospitals and were 37% more likely to die of their injuries than the insured. Comparing hospital admissions for “non-deferrable” conditions on either side of the Medicare qualification threshold, Card *et al.* (2007) found that those who were just over the threshold (and therefore almost all insured) enjoyed significantly more treatment and a 20% reduction in the 7-day mortality rate than those just under the threshold. Glied and Mahato (2008) finds that differences in rates of insurance coverage between high- and low-wage workers are the main factor accounting for the increasingly large differences in access to health-care services between these two groups (Box 3.2).


The delay in treating the uninsured not only reduces the effectiveness of treatment, as noted above, but also increases costs; insofar as the conditions concerned are communicable diseases, these delays in prevention and treatment also expose the rest of society to health risks. Another factor that unnecessarily raises the costs of treating the

Box 3.2. The gap in health-care services between high- and low-wage workers is widening

Access to health-care services has declined for low-wage full-time, full-year workers in recent years, whereas it has increased markedly for high-wage full-time, full-year workers.^{*} Glied and Mahato (2008) report that low-wage workers were less likely to visit a physician in 2003 than in 1996, less likely to have a regular source of care, to have made only small improvements in terms of receiving basic preventive services and in some cases (blood pressure checks) to have received fewer services. High-wage workers, by contrast, enjoyed increases across all of these service dimensions, raising the already large gap that existed in 1996 between the services they received and those received by low-wage workers. Average annual health-care expenditures by high-wage workers nearly doubled between 1996 and 2003, whereas for low-wage workers the increase was only 14%. Such expenditures for high-wage workers are now almost double the level for low-wage workers (Figure 3.9). High-wage workers are more likely to report being in good health than are low-wage workers.

Figure 3.9. Average annual health-care expenditures, by wage status



StatLink  <http://dx.doi.org/10.1787/488255313442>

1. Top 20% of the wage distribution.
2. Bottom 20% of the wage distribution.

Source: Glied and Mahato (2008).

The main factor driving up health-care costs for high-wage workers appears to be that they are given much greater access to new medical technologies than are low-wage workers. Glied and Mahato (2008) cite the example of newer drugs, which are associated with higher rates of survival. The proportion of prescription drugs that were less than 20-years old rose from 17% in 1996 to 23% in 2003 for high-wage workers, whereas the increase for low-wage workers was only from 13% to 15%.

Box 3.2. The gap in health-care services between high- and low-wage workers is widening (cont.)

Many, though not all of the gaps in access to health care described above disappear once differences in the rates of health insurance coverage between high- and low-wage workers are controlled for. In this regard, Glied and Mahato (2008) find that the proportion of full-time, full-year workers without insurance coverage increased from 22% to 31% in the bottom quintile of earnings between 1996 and 2003 but was stable at 6% in the top quintile of earnings. Moreover, a much higher proportion of low-wage households have high out-of-pocket expenses for health care in relation to income than is the case for high-wage households, and this gap has increased in recent years.

* Low- and high-wage workers correspond to workers in the bottom and top quintiles of earnings, respectively.

uninsured is that they often get treated in emergency rooms for conditions that could have been treated more cheaply elsewhere.^{23, 24}

An increasing proportion of the population is underinsured

A significant and growing proportion of the population incurs medical costs that are large relative to income as a consequence of requiring health care but being underinsured against medical costs. Schoen, Collins, Kriss, and Doty (2008) estimate that the proportion of the population aged 19-64 that is underinsured has increased from 9% in 2003 to 14% in 2007 (see Table 3.4);^{25, 26} this corresponds to an increase in the proportion of the insured population that is underinsured from 12% in 2003 to 20% in 2007. The incidence of underinsurance falls with household income, is higher for sicker households than for healthier ones, and rises with age, reaching 18% for those aged 50-64. Underinsured adults, as with uninsured adults, experience much greater cost-related problems of access to medical care, tend to delay preventive care screening because of cost, more often do not take treatment for a chronic condition because of cost and have greater care coordination problems.

Schoen, Collins, Kriss, and Doty (2008) also found that the “underinsured were more likely to report benefit limits, including limits on the total dollar amount a plan would pay for medical care and on the number of yearly visits to doctors, and were less likely to report dental or prescription drug benefits” than the insured population that was not underinsured; total dollar limits on benefits limit the usefulness of insurance in protecting against major financial risks from medical costs. Despite benefit limits and higher deductibles, the underinsured reported paying premiums similar to those paid by the more adequately insured population. A factor contributing to this apparent anomaly is that the underinsured are less likely to have employer-sponsored insurance and are therefore more likely to buy coverage through the individual market, where insurance is more expensive. Insurance is more expensive (i.e., load factors – the proportion of premiums not going to pay medical claims – are higher) in the individual (and small group) market because adverse selection risks and administrative costs are higher than in the employer-sponsored market and because there is also a larger risk premium to compensate for greater variance in medical expenditures over time.

Reforms to extend health insurance coverage

Market failures in the health insurance market

Imperfect information results in two main market failures in the private health insurance market. First, insurers are not fully informed about an applicant's *characteristics* that affect the expected value of future claims. This exposes the insurer to the risk that someone wants to buy health insurance because they are a bad risk. To reduce exposure to losses from this risk, known as *adverse selection*, insurers invest in obtaining information about the applicant's true characteristics and adjust premiums accordingly or refuse to offer insurance. Second, insurers lack information about the future behaviour of the individual. Insurance increases *incentives* to behave in ways that increase claims, notably by consuming more medical services than otherwise. To limit this risk, known as *moral hazard*, insurers propose policies with lower premiums that have more cost sharing (deductibles, copayments, or coinsurance).^{27, 28}

Adverse selection risk can be overcome by constituting large pools of persons to be insured that are independent of individuals' risk characteristics. In the private health-care insurance market in the United States, such pools are mainly employment based. The fact that insurers do not have to invest in obtaining information to avoid bad risks is a major factor underlying the lower administrative costs for insurance of large employment-based pools than of individuals or small groups: loading charges range from 5-8% of benefits for large groups (more than 1 000 employees), to 15-20% of benefits for medium-sized groups (100-200 employees) and 60-80% of the benefits for individual policies, although some of these differences also reflect the more comprehensive cover obtained by large firms (fixed distribution costs spread across more medical benefits) (Phelps, 2002).²⁹ In almost all other OECD countries, adverse selection (at least for primary health insurance) is overcome by creating universal entitlements, making the pool the country's entire population.

While the dominance of employer-based health insurance emerged in the United States mainly owing to an historical accident, government has supported these arrangements through the "tax exclusion", so called because labour compensation in the form of health insurance benefits is not treated as income subject to personal income or payroll taxation (Box 3.3), as well as through the Employee Retirement Income Security Act of 1974 (ERISA), which exempts employee benefit plans from various state insurance regulations (mandates). Although the tax exclusion plays a valuable role in supporting the constitution of large insurance pools, it also has some drawbacks. In particular, it is an open-ended subsidy that encourages the purchase of policies that have little cost sharing, accentuating moral hazard risks. It has this effect because employer-sponsored health-care insurance policies are purchased out of pre-tax income whereas out-of-pocket payments are made out of net-of-tax income. This factor is estimated to reduce the cost of health-care insurance by about 35% relative to the cost of out-of-pocket payments (and other goods and services purchased out of net-of-tax income) for a typical worker (Gruber, 2008).³⁰ Partly in response to these incentives, approximately 87% of health-care spending is paid through insurance, while the remaining 13% comes from out-of-pocket payments (Figure 3.10). The share of out-of-pocket expenses in total health-care expenditure in the United States is relatively low by international comparison (the median among OECD countries is 18%).³¹

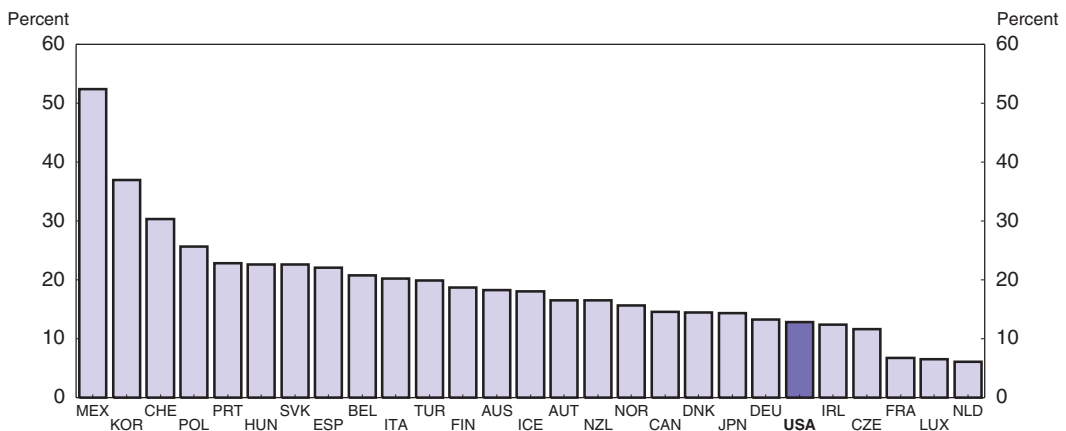
The effect of benefit designs with little cost sharing on consumption of health-care services was documented in the RAND Health Insurance Experiment in the early 1980s, in


Box 3.3. The origins and budget cost of employment-based health insurance

The predominance of employment-based health insurance in the United States is unique amongst OECD countries: even in the Netherlands and Switzerland, where residents also obtain (primary) health insurance from private insurers rather than from a single payer (as in most other countries), such insurance is not predominantly employment based but rather mainly purchased in the individual market. The situation in the United States largely results from an historical accident: wage controls instituted during the second-world war led to a proliferation of nonwage benefits. A subsequent IRS ruling made them exempt from payroll and income taxes, making this form of remuneration attractive even after the wage controls were rescinded. A provision in the Stabilization Act of 1942, which limited the wage increases that employers could grant, permitted employer-paid health insurance to be provided as a fringe benefit exempt from wage controls. The preference was extended to the tax code shortly thereafter. Under a 1943 administrative tax-court ruling and 1954 changes to the Internal Revenue Code, employer contributions to employees' health-insurance costs became deductible to the employer and non-taxable to the employee (Cogan *et al*, 2005).

Today, approximately 164 million non-elderly persons receive health insurance benefits from their employer, while only 16 million purchase private insurance directly themselves. The tax exclusion cost the federal budget USD 200 billion in 2004 (*Final Report of the President's Advisory Panel on Tax Reform*, 2005; the tax exclusion probably amounts to about USD 225 billion in 2008) and is rising at the same rate as health-care expenditures (*i.e.*, considerably faster than GDP).

Figure 3.10. Out-of-pocket expenses as a share of total health expenditures¹



StatLink  <http://dx.doi.org/10.1787/488262158113>

1. 2006, except for Australia, Slovak Republic, Turkey and Japan: 2005.

Source: OECD Health data (2008).

which individuals were randomly assigned to insurance plans with different levels of enrollee cost sharing up to annual costs of USD 1 000 (at 1984 prices), beyond which all costs were covered by insurance (Manning *et al.*, 1987). The experiment showed that the amount of health-care consumption varied inversely with the level of cost sharing. For instance, enrollees placed in the plan with no cost sharing spent USD 777 for the year, while enrollees placed in the plan with a 25% coinsurance rate spent USD 630 for the year. Despite these different levels of spending, there were no significant differences in the health outcomes

of these two groups except for low income and unhealthy individuals, who had worse health outcomes in the group with higher cost sharing. The elasticity of medical care use with respect to its price in this study was -0.2 . Based on this low elasticity, Feldman and Dowd (1991) estimate that the deadweight loss due to moral hazard in employer-sponsored health insurance was USD 33.4 billion-USD 109.3 billion in 1991, equivalent to $4\frac{1}{2}$ per cent- $14\frac{1}{2}$ per cent of total health-care expenditures at the time.

The tax exclusion also raises equity concerns. It violates vertical equity, as the subsidy rises with income, as well as horizontal equity, as the subsidy results in different taxation of two individuals with identical incomes and circumstances except that one benefits from employer-sponsored-health insurance and the other does not. As noted above, most of the underinsured, who tend to have lower incomes, cannot benefit from this subsidy as they are not even offered such insurance.

Reforms to expand insurance coverage and to improve health outcomes in relation to health costs

An expansion in access to health-care services for lower-income Americans may facilitate achievement of the US federal government's health goals laid out in Healthy People 2000 – to reduce and ultimately eliminate health inequalities amongst various segments of the population and to increase life expectancy and quality of life for Americans of all ages, as noted above. Insofar as financial access to health-care services becomes less unequal, some improvement in population health status in relation to health expenditures could also be expected, given diminishing returns to health expenditures at any point in time (i.e., with unchanged technology).

One approach to advancing these objectives would be to *terminate the existing health tax exclusion* to mitigate moral hazard problems, even though ending the tax exclusion would lead to a reduction in the number of people offered employer-sponsored health insurance, especially among those working for small companies. Terminating the tax exclusion would mitigate moral hazard problems by reducing incentives to buy policies with little cost sharing; it would also reduce job lock. The tax revenues resulting from the elimination of the tax exclusion would be available to *subsidise the purchase of insurance* by individuals in a way that is independent of the choice of health plan, provided that some minimum standards of required coverage are satisfied. Such subsidies, which could take many forms, such as direct subsidies or refundable tax credits, would improve the current situation in at least two ways: they would reach those who do not now receive the benefit of the tax exclusion; and they would encourage more cost-conscious purchase of health insurance plans and health care services as, in contrast to the uncapped tax exclusion, such subsidies would reduce the incentive to purchase health plans with little cost sharing. Policy makers should consider means testing these subsidies. The extent to which such subsidies reduced the number of uninsured would depend on many factors, including their level and structure.

Further measures would likely be necessary to expand coverage substantially. At present, the individual insurance market is not attractive, in part because adverse selection risks have led to high premiums compared with their actuarial value, and because administrative costs are high. These problems could be addressed by *increasing the size of risk pools* and reforming the individual and small-group insurance markets by *requiring community-rated- and guaranteed-issue policies*, thus disconnecting the payments from individual health risks. This approach would have a greater impact on coverage if accompanied by a *requirement (mandate) to be insured*, as some healthy people may

otherwise choose to be uninsured rather than to pay community-rated premiums, which are higher than experience-rated premiums for healthy people. Bringing these people into the risk pool would also make insurance in the individual and small-group market even more affordable on average.

While reforms along these lines could help to improve the relationship between the health status of the US population and health-care expenditures, such reforms would not, however, reduce the high long-run rate of growth in health expenditures, which many consider to be another weakness of the US health-care system. Indeed, by expanding insurance coverage, such reforms could even cause a step-up in health expenditures. Also, the drawbacks of a requirement to be insured should not be underestimated, including: the complexity of defining the required coverage; the risk that this requirement will become unduly inflated; the inherent reduction in consumer choice; and difficulties in designing and implementing appropriate enforcement mechanisms.

Gruber (2008) reports results from a micro-simulation model of the effects of a reform package along these lines; the specific details of his package are spelled out in Box 3.4, including the means-testing of subsidies for the purchase of health insurance. Such a package is assumed to reduce the uninsured population by 45 million, essentially achieving universal coverage (Table 3.5, Column 3). The population covered by employer-sponsored insurance would shrink by 24 million (15% of the base population).³² This contraction, which no longer matters as individuals have access to the new insurance pool, along with take-up by the uninsured accounts for most of the increase in the size of the new insurance pool (78 million). The reform package would yield a fiscal surplus of USD 50 billion assuming that the tax exclusion costs USD 200 billion. It would also cause a large redistribution of federal government policy benefits towards low-income households

Box 3.4. The health-insurance reform package in Gruber's (2008) micro-simulation

- Low income individuals not entitled to enrol in existing public insurance programmes and without access to employer-sponsored insurance are enrolled in new state-specific pools. Insurers can only offer insurance in these pools on a guaranteed issue, community-rated basis. There is redistribution across plans within this pool to offset very high cost cases. Low-income individuals offered employer-sponsored insurance can join the pools provided that they bring with them their employer's contribution.
- The benefits package within the pools varies based on income, from complete coverage with minimal cost sharing for persons with incomes below the poverty line to more cost sharing at higher incomes. Selective provider networks are used.
- Subsidies limit the share of income that individuals must pay for these insurance policies. These shares of income range from 2% between 100% and 150% of the poverty line (approximately USD 20 000-USD 30 000 per year) up to 12% of income between 350% and 400% of the poverty line, which roughly corresponds to median income in the United States. Beyond this income level, there are no more subsidies.
- An individual requirement (mandate) to have health insurance cover is introduced with dissuasive penalties for non-compliance – it is assumed that 97% of the uninsured obtain insurance cover.
- The subsidies are financed by removing the tax exclusion for employer-sponsored health insurance benefits.

Table 3.5. **New insurance pool for individuals and small groups with subsidies and changed tax exclusions**

Tax exclusions	None	None	Eliminate all	Distributionally neutral
Individual mandate	No	Yes	Yes	Yes
Voucher	Yes	Yes	Yes	Yes
Changes in population (millions of persons)				
Uninsured take-up	25	33	34	34
Uninsured share of take-up (%)	48	53	43	43
Uninsured increase	2	0	0	0
Net decrease in uninsured	23	45	45	45
Net change in employer insured	-16	-7	-24	-24
Net change in non-group insured	-7	-7	-7	-7
Net change in publicly insured	-7	-3	-3	-3
Net change in new pool	53	62	78	78
Costs				
Total cost (USD 2006 millions)	101 900	124 100	(50 000)	(14 500)
Cost per newly insured (USD 2006)	4 400	2 700	(1 100)	(400)
Targeting				
Average age of newly insured	32	31	31	31
Newly insured fair/poor health (%)	10	10	10	10
Average cost of newly insured (USD 2006)	3 400	3 400	3 400	3 400
Spending per USD of insurance (USD 2006)	1.10	0.81	(0.33)	(0.10)
Distribution of federal policy benefits (USD 2006 billions)				
< 100% poverty	50	63	63	63
100-200% poverty	39	49	42	43
200-300% poverty	14	20	0	0
300-400% poverty	1	2	(28)	0
400-500% poverty	(1)	(0)	(28)	(21)
> 500% poverty	(3)	(2)	(87)	(87)

Source: Gruber, J. (2008), "Covering the uninsured in the US", NBER Working Paper No. 13758.

from the rest of the population – households with incomes of 300% of the poverty level or more would lose federal benefits from this reform. The USD 50 billion surplus could be returned to households up to the median income level to ensure that none of them is made worse off by the reform, as is illustrated in the fourth column of Table 3.5.³³ Such a measure would increase the political viability of the reform package.

A reform package with a pooling mechanism, mandate and subsidies for low-income persons to buy insurance in the individual market was recently implemented in Massachusetts, the main differences being that dissuasive penalties for not having insurance cover are only being phased in progressively in Massachusetts and that, naturally, the federal tax exclusion remains in place (Box 3.5). Indeed, the Massachusetts reform package extends the tax exclusion to individuals who work for an employer that does not offer health insurance and therefore must buy insurance on their own by creating a mechanism that allows such insurance to be purchased out of pre-tax income.³⁴ The first year of experience of the Massachusetts reform showed some promising results. As of May 2008, about 350 000 residents – 5.5% of the state's population – were newly insured, leaving approximately 4% of the population uninsured. About half of the newly insured – far more than the State expected – were enrolled in Commonwealth Care, a subsidised insurance programme for adults who earn no more than 300% of the federal poverty guidelines, while about a third had purchased private insurance or gained employer-

Box 3.5. Massachusetts health-insurance reform

The main elements of the health-insurance reform enacted in 2006 are the following:

- A legal requirement (*mandate*) for all state residents to purchase health insurance coverage as of 1 July 2007. Penalties for non-compliance were loss of the personal deduction (USD 219) on state income tax in 2007, rising to 50% of the average cost of a health insurance plan in the geographic region in which the person lives for 2008 and beyond, up to a maximum of USD 912. Two per cent of the population is exempt from this legal requirement because insurance coverage has been deemed not to be affordable for them.
- A legal requirement (*mandate*) for employers with 11 or more employees to make a “fair and reasonable” contribution towards health insurance coverage for their employees or pay a “Fair Share” contribution since 1 July 2007. These employers must also offer a Section 125 “cafeteria plan” to employees that enables them to purchase health insurance with pre-tax dollars.
- Expansion of Medicaid (*MassHealth*) to cover children in families with incomes up to 300% of the federal poverty level.
- Creation of a new programme (*the Commonwealth Care Health Insurance Program, or CommCare*) that provides subsidized health insurance coverage for persons with incomes below 300% of the federal poverty level (amounting to USD 30 630 for an individual) who do not have access to employer coverage and who are not eligible for Medicaid (*MassHealth*). Subsidies are on an income-based sliding scale. Low-income employees with access to employer coverage may still join *CommCare* provided that they bring their employer’s contributions with them.
- Creation of an independent public authority, *the Commonwealth Health Insurance Connector*, which acts like an insurance exchange to provide individuals and small businesses access to easily comparable insurance products. The Connector Board must approve plans sold on the exchange, which are known as *Commonwealth Choice Plans (CommChoice)*. Insurers must offer plans on a guaranteed issue (an insurer is not allowed to refuse to sell the plan to anyone) and community-rated (except for a maximum two-to-one price differential based on age) basis. Under these arrangements, the non-group and small-group markets have been merged.
- Creation of a risk equalisation fund (*the Health Safety Net Trust Fund*) to compensate insurers for enrollees with predictably high medical expenses.

sponsored coverage. Because of higher than anticipated enrolment, the State is facing a funding shortfall that it had not anticipated. It should also be borne in mind that the Massachusetts experience may not be indicative of what the US experience would be as Massachusetts is more affluent and had a lower uninsured rate than the national average.

In addition to helping to make progress towards the US government’s health objectives for the nation and improving the relationship between health outcomes and health-care expenditures, the reforms put forward here have a number of other advantages. First, they are incremental, building on the dominant role of private insurers for the non-elderly population, not radical, as would be moving to single-payer arrangements, which are found in most other OECD countries. Second, they are fiscally neutral, as demonstrated by Gruber’s simulations. Third, they appear to be in the mainstream of reform plans in the public domain, sharing important features of the plans put forward by the 2008 Democratic Presidential candidate (health-insurance exchange,

subsidies for low-income persons) and the 2008 Republican Presidential candidate (removing the tax exclusion).³⁵ These reforms do not preclude expanding insurance coverage to certain target groups through an extension of Medicaid or Medicare. The option of increasing insurance coverage through these public plans was already recommended in the 2002 OECD *Economic Survey of the United States* and remains valid.³⁶ Nevertheless, political support for such a reform appears to be weak at the moment, underlining the importance of other reform fronts where it may be more feasible to make progress. On the other hand, such reforms could lead to an increase in health expenditure.³⁷ The withdrawal of subsidies in the individual health income market as income rises would also increase marginal effective tax rates, leading to a reduction in total hours worked. Similarly, abolition of the tax exclusion would increase income tax rates for persons in employer-sponsored schemes, also reducing work incentives.³⁸

Medicare reforms to improve value for money

Public spending on the Medicare programme for the elderly (and the disabled, who represent a small minority of enrollees) has generally increased more rapidly than total health-care expenditures since its creation in 1965; Medicare outlays have increased from around 15% of total health care expenditures in 1980 to 19% in 2006, representing approximately 3% of GDP. While population ageing accounts for some of the increase – the 65 or over age group has been growing faster than the rest of the population – expenditure per person has also been increasing faster than for the rest of the population. Two recent policy changes have boosted Medicare spending. The first is the Medicare Part D prescription drug benefit in 2006 as the result of the 2003 Medicare Modernization Act (MMA).³⁹ About three quarters of spending on the prescription drug benefit is financed through general tax revenues. The second is the expansion of private Medicare Advantage (MA) plans, which also resulted from the 2003 MMA.

The Office of the Actuary in the Centers for Medicare and Medicaid Services (CMS) projects that total Medicare spending will rise to 10.8% of GDP in 2082, implying only a slightly higher rate of increase than in total health-care expenditures, which are projected by the CBO (2007b) to rise from 15% of GDP in 2006 to 49% of GDP in 2082. From these projections it can be deduced that population ageing as such is not the dominant influence on the projected growth in Medicare expenditures.⁴⁰ Rather, the factors that are driving health-care expenditure in general higher are having the same effect on Medicare outlays. The main driver of higher health-care expenditure appears to be the introduction of new technologies (Newhouse, 1992), which, as discussed above, seem to be worthwhile as the improvements in life expectancy and in the quality of life that they yield on average are more valuable than the cost of the technologies. Even so, financing these increases in expenditure (as well as in expenditure on Medicaid, which is currently about three quarters of the size of Medicare expenditure) is a major challenge for government. An immediate increase in the combined Part A payroll tax from 2.9% to 6.4% would be necessary to achieve solvency over the 75-year window. About half of total federal Medicare spending is financed by the payroll tax, so there would have to be an associated increase in general tax revenues for Parts B and D of Medicare. In the absence of increased tax revenue, either spending on non-health items or in Medicare itself would have to be reduced.

While there may not be much that can or should be done to slow the long-term growth of Medicare expenditures, a variety of measures could be taken to reduce costs without having any adverse effect on the quality of health-care services available to enrollees. One

compelling piece of evidence, as noted above, is based on data drawn from the Dartmouth Atlas of health care, which shows that Medicare health-care spending per capita varies widely across the United States without associated variation in health outcomes. Providers in some regions of the country have practice styles that are more aggressive and costly, and that do not appear to provide significant benefits in terms of patients' health outcomes. Extrapolating these potential efficiency gains to the whole country indicates that Medicare spending could be reduced by as much as 30% without hurting the health status of the population. Policy settings should be changed to encourage best practice.

Enhance the dissemination of information on the effectiveness and cost of treatments and procedures

The establishment of comparative effectiveness institutes outside of the federal government could be a useful step to help achieve greater efficiency; similar agencies (operating without competition within the government) exist in the United Kingdom, Australia, Canada, and Germany. Such agencies would conduct and/or coordinate large-scale cost-effectiveness studies on medical treatments and disseminate the results to both insurers and providers. Promoting the use of the least costly effective treatment that is appropriate for a patient could yield considerable savings in total health-care expenditures given the findings of the Dartmouth Atlas study quoted above, particularly if providers have incentives to do so. One option for promoting the use of such treatments by Medicare patients would be for the Medicare Payment Advisory Commission (MedPAC) to issue specific guidelines about which services are actually covered by Medicare, while another option would be to use the cost-effectiveness findings to determine the copayments for various services (i.e., lower copayments for more cost-effective and appropriate treatments and higher copayments for less cost-effective and less appropriate treatments). Such a mechanism would certainly strengthen incentives to develop cost-saving technologies. It would also, however, represent a radical departure from Medicare policy of providing coverage for services that are medically effective and appropriate irrespective of cost. Pedagogy would be required for the American public to accept that cost is a relevant factor in determining what an appropriate treatment is for any given patient. It would also have to be structured in such a way as not to restrict access to innovative medical technologies, as is sometimes claimed to have occurred at similar entities in other countries.

A secondary benefit from establishing independent comparative effectiveness institutes in this manner might be to better establish a system for determining Medicare benefits that is less subject to interference from Congress. For instance, the MedPAC makes recommendations each year for improving the efficiency and equity of payments to providers that are usually ignored by Congress. Finding political support for the creation of such institutes would not be easy, however. There was strong opposition to arrangements along these lines in the past in the United States.

Decrease the generosity of supplemental Medicare insurance designs for beneficiaries without chronic conditions to reduce moral hazard risks

Medicare pays physicians under the Original Medicare Plan, which is a fee-for-service plan to which most Medicare enrollees belong, according to a fixed schedule of fees. Although Medicare reimbursements come with notable out-of-pocket payments, about 90% of Medicare beneficiaries have supplemental insurance covering them (such as employer-sponsored supplemental coverage, Medigap and Medicaid) that insulates them

from cost-sharing provisions. In addition, the assignment of supplemental benefits directly to the provider of service reduces price transparency and makes the patient insensitive to price signals, a situation that has been shown to alter consumer behaviour and reduce the elasticity of demand to prices (CBO, 2008). The CBO traditionally estimates that Medigap policyholders use at least 25% more services than Medicare enrollees who have no supplemental coverage, although this has been criticized for being an overestimate by a recent empirical study (Lemmieux *et al.*, 2008). Another study shows that elderly patients are quite price sensitive in their health care consumption: a 10% increase in price is associated with a 14% decline in utilisation of physician visits, a far greater effect than that found in the RAND study, which did not cover the elderly (Chandra *et al.* 2007). This would argue for decreasing the generosity of supplemental Medicare insurance benefit designs to reduce moral hazard risks. The above study also shows, however, that the saving from reduced physician visits and pharmaceutical consumption is partly offset by greater use of hospitalisation, notably among chronically-ill patients. Hence, while less generous supplemental insurance might yield more efficient health insurance for some patients, the opposite holds for chronically-ill patients, who should not be deterred from seeing the doctor and buying prescribed drugs for their chronic condition. While less generous supplemental insurance-benefit designs for Medicare beneficiaries without a chronic health condition would yield some savings, they would not be large as this group only represents 18% of Medicare beneficiaries and a subset of these is dually eligible for Medicaid.

Reduce overpayments to Medicare Advantage

Medicare Advantage (MA) plans (also known as Medicare Part C) provide Part A (hospital) and Part B (medical) coverage as well as medically-necessary services. They are often managed plans (like HMOs or PPOs). These plans generally offer more services, such as prescription drug coverage, than the Original Medicare plan and tend to have less cost sharing. Unfortunately, these plans have proved to be more expensive than the cost to Medicare of providing these services directly. The nonpartisan Congressional MedPAC organisation estimates that these plans receive payments that are 13% higher than the payments to providers under the traditional fee-for-service Medicare programme for similar beneficiaries (MedPAC, 2008); fee-for-service MA plans are estimated to cost 17% more than the cost of Medicare providing the same benefits itself. According to MedPac, a significant portion of these extra payments goes to fund plan administration and profits and not to services for beneficiaries. MedPac also notes that the extra payments raise equity concerns as they are funded by all Medicare Part B beneficiaries (through their Part B premiums) and by all taxpayers (through general revenues) while only MA enrollees benefit, although it should be noted in this regard that almost all Medicare beneficiaries have the opportunity to join a MA plan. In addition, such payments enable MA plans to attract new clients without improving efficiency, a problem underlined by the rapid growth in fee-for-service plans. A start to overcoming these problems was made in recent legislation, which reduced payments to MA plans and required most fee-for-service MA plans to form provider networks; the savings were used to avoid implementing a programmed reduction in physicians' fees (Box 3.6).

Use competitive tenders for purchases of medical equipment and supplies

Medicare pricing policy for medical equipment could be reformed to produce cost-saving gains. Current policies dictate that Medicare use fee schedules primarily based on

Box 3.6. The Sustainable Growth Rate mechanism to control growth in Medicare expenditure on physicians' services and related services

In view of repeated overruns in payments to physicians, Congress established in 1998 a new mechanism called the “sustainable growth rate” (SGR) aimed at controlling payments made for physicians’ services and in connection to visits to physicians (such as laboratory tests and drugs administered by physicians).^{*} The goal was to subject aggregate payments to a ceiling. Under the SGR mechanism, fees paid to physicians are adjusted downward if the pre-established spending ceiling is exceeded or upwards in the opposite situation. Left unaltered, the SGR formula ultimately recoups spending that exceeds the cumulative target by reducing payment rates for physicians’ services or by holding increases below inflation. Five years after the SGR was established, spending overruns triggered the SGR mechanism to demand a cut in doctors’ fees of 5.4%, which was approved by Congress. Subsequent overruns of ceilings should have again triggered cuts in physician payment rates but, in the face of opposition, these were averted by the adoption of legislative action that allocated additional spending to override cuts in the doctors’ fee schedules. A cut in doctors’ fee schedule of 10.6% was to take place on 1 July 2008 to begin recouping these slippages. This was strongly opposed by physicians, who said that this would cause doctors to limit the number of new Medicare patients that they see (AMA, 2008). In reaction, legislation was proposed to avoid cuts in payment rates, with funding taken from cuts in federal payments to the Medicare Advantage programme. Despite a Presidential veto, a large enough majority was achieved in Congress to pass this Bill into law.

* A similar mechanism operates in Germany.

historical charges. The Government Accountability Office (GAO) has established that Medicare has paid higher than market rates for medical equipment and supplies provided to beneficiaries under Medicare Plan B (GAO, 2008). The Balanced Budget Act of 1997 required that Medicare administrators test competitive bidding as a new way to set payments. This test was administered in two locations in which suppliers could compete on the basis of price and other factors for the right to provide their products. The results were that a competitive bidding programme would reduce payments by 26% on average, based on strict criteria of product quality and security of suppliers, and without significantly reducing access of beneficiaries to supplies. Anecdotal information also suggests that Medicare pays much higher prices than charged by retail outlets for the same products. If competitive bidding were extended, it could save Medicare USD 1 billion a year. While competitive bidding was to have been spread to 70 more locations soon, the new law recently passed by Congress that avoided a cut in physicians’ fees and reduced payments to Medicare Advantage also delayed the generalisation of competitive bidding until 2009. It is important that there be no further delays in the implementation of this cost-saving measure.

Box 3.7. Recommendations for improving value for money and insurance coverage in health care

Reforms to increase health insurance coverage and encourage more cost-conscious purchasing

Replace the health tax exclusion (i.e., the exclusion from taxable personal income and payroll tax of compensation paid in the form of health insurance cover) with more efficient subsidies that are independent of the choice of health plan (provided that some minimum standards of required coverage are satisfied). Doing so would remove incentives inherent in the tax exclusion to buy plans with little cost sharing, thus facilitating more cost-conscious purchasing decisions. Policy makers should consider means testing these subsidies.

Reform the individual and small-group market to facilitate greater pooling. One approach to doing this would be to increase the size of risk pools and reform these markets by requiring community-rated and guaranteed-issue policies, thus disconnecting premiums from individual health risks. Such reforms would tend to reduce adverse selection, resulting in lower premiums on average in relation to the actuarial value of policies, making health insurance in these markets more attractive. This approach would have a greater impact if accompanied by a requirement to be insured, although such a requirement would have its own drawbacks, such as the complexity of defining the required coverage and the risk that this requirement could become inflated.

Medicare reforms to improve value for money

Enhance the dissemination of information on the effectiveness and cost of treatments and procedures, possibly by encouraging the establishment of comparative effectiveness institutes outside of the federal government to conduct and/or co-ordinate cost-effectiveness studies and use those results to decide how services would be covered or reimbursed by Medicare. These arrangements would need to be structured in such a way as not to restrict access to innovative medical technologies that are cost effective.

Decrease the generosity of supplemental Medicare insurance designs for beneficiaries without chronic conditions to reduce moral hazard risks, which supplemental insurance accentuates by insulating Medicare beneficiaries from Medicare's cost-sharing provisions.

Gradually lower Medicare Advantage (MA) payments to the level for traditional fee-for-service Medicare plans, thereby increasing the pressure on insurers to improve efficiency to attract new clients.

Do not delay further the use of competitive tenders for purchases of medical equipment and supplies.

Notes

1. It has been claimed (Ohsfeldt and Schneider, 2006) that adjusting for the higher death rate from accident or injury in the United States over 1980-99 than the OECD average would increase US life expectancy at birth from 18th out of 29 OECD countries to the highest. In fact, what the panel regression estimated by these authors shows is that predicted life expectancy at birth based on US GDP per capita and OECD average death rates from these causes is the highest in the OECD. The adjustment for the gap in injury death rates between the United States and the OECD average alone only increases life expectancy at birth marginally, from 19th among 29 countries on average over 1980-99 to 17th. Hence, the high ranking of adjusted life expectancy at birth mainly reflects high US GDP per capita, not the effects of unusually high death rates from accident or injury. For information, the most recent data (which were used to make these calculations) on average standardised death rates per 100 000 population from accident or injury over 1980-99 for land transport, suicides, homicides, and falls, respectively are 17.4, 11.4, 9.2, and 4.6 for the United States and 15.5, 13.3, 3.0, and 10.4 for the OECD average (OECD Health Data, 2008). Life expectancy at birth on average over 1980-99 was 75.3 years for both the United States and the OECD average (29 countries) (OECD Health Data, 2008).

2. These causes of death, referred to below as external, include: land transport accidents; intentional self-harm; accidental falls; and assaults.
3. This study used factor analysis to construct a deprivation index consisting of 11 education, occupation, wealth, income distribution, unemployment, poverty, and housing quality indicators.
4. These results are broadly corroborated in a study by Meara, Richards and Cutler (2008), which finds that all of the increase in US life expectancy at age 25 since the 1980s occurred in the better-educated population (defined as persons with 13 years or more of education, which corresponds to any college-level education). Life expectancy did not rise significantly for the lesser-educated population.
5. Specifically, the infant mortality rate reflects the effects of economic and social conditions on the health of mothers and newborns as well as the effectiveness of health systems (OECD, 2007).
6. ICD-10 refers to the International Statistical Classification of Diseases and Related Health Problems (10th Revision).
7. The share of public expenditure in the United States is, however, understated compared with some countries (including Australia and Germany) where tax expenditures to encourage the purchase of private health insurance are included in the public share. Such expenditures are high in the United States (2% of GDP) by international comparison.
8. Anderson *et al.* (2003) reached the same conclusion when they conducted a similar exercise a few years ago.
9. Medicare Part D provides cover for outpatient prescription drugs. Persons eligible for Medicare may enrol for Part D cover.
10. According to Agrisano *et al.* (2007), USD 84 billion of the USD 98 billion in excess spending on administration can be traced to private stakeholders. These authors estimate that in the US private sector, some 64% of the administrative costs incurred by private payers are due to underwriting health risks, sales and marketing – costs that do not arise in the public systems of most OECD countries. Agrisano *et al.* (2007) report further that in the public sector, administrative expenses account for 3% of the Medicare budget and 3-5% of the Medicaid system, compared with 2% spent in Britain's National Health Service.
11. These conditions are: heart disease; high blood pressure; high cholesterol; stroke/cardiovascular disease; asthma; arthritis; osteoporosis; and cancer.
12. Estimates of overweight and obesity rates in Australia, the Czech Republic, Luxembourg, New Zealand, the United Kingdom and the United States are derived from health examinations in which actual measures of people's height and weight are taken. Data collection in other OECD countries is by self-reporting. Based on experience with both methodologies in the United States, self reporting tends to result in underestimates of overweight and obesity incidence in the population (OECD, 2007).
13. Angrisano *et al.* (2007) find that the prevalence of 130 diseases, including the most common disease groups, is not much greater in the United States than in peer countries (Japan, Germany, France, Italy, Spain, and the United Kingdom). The slightly higher prevalence of these diseases in the United States than in the other countries only adds USD 25 billion to treatment costs in the United States. This compares with the authors' estimate of the excess of expenditure in the United States compared with these countries after adjusting for GDP per capita of USD 477 billion in 2005 (out of total expenditure of USD 1.9 trillion), as noted above.
14. Professional malpractice insurance premiums amounted to approximately 7% of total physicians' expenses in 2000, which is similar to their share in expenses in 1970 (Rodwin, Chang and Clausen, 2006).
15. The number of uninsured persons actually declined in 2007, to 45.7 million, from 47.0 million the year before. This decline reflected an expansion in the number of people covered by government health insurance programmes. It should also be noted that around 5 million of the uninsured are uninsured for less than one year. A further 3½ million are illegal immigrants.
16. SCHIP is an expansion to the public Medicaid programme for lower-income families. It started in 1997. States have expanded eligibility at varying rates since its inception, resulting in a steady number of uninsured children after 2000. There is currently a great deal of uncertainty about the future of SCHIP; there was bipartisan agreement for re-authorisation of the programme in 2007 but the Bill was vetoed by the President a number of times without enough support among Congress to override the veto.
17. While almost all large firms offer health insurance benefits, only about 59% of employers at small firms (3-199 workers) do so. This percentage has been falling since 1999, mainly on account of

rising costs (The Kaiser Family Foundation and Health Research and Education Trust, 2007). New small firms (less than 5 years of existence) are much less likely to offer employer-sponsored health insurance than are older smaller firms (Jacobs and Claxton, 2008).

18. In addition to individuals working in firms that do not offer health insurance to any employees, about 20% of workers in firms with insurance plans are not eligible (mostly part-time workers).
19. Estimates of premiums came from those available to firms with fewer than ten workers using the 2004 Medical Expenditure Panel Survey Insurance Component.
20. Loading is the proportion of the insurance premium not going to pay medical claims.
21. An emergency medical condition is defined in The Emergency Medical Treatment Act (EMTALA, which was passed as part of the Consolidated Omnibus Budget Reconciliation Act of 1986) as:

A medical condition manifesting itself by acute symptoms of sufficient severity (including severe pain) such that absence of immediate medical attention could reasonably be expected to result in:

 - placing the health of the individual (or, with respect to a pregnant woman, the health of the woman or her unborn child) in serious jeopardy;
 - serious impairment to bodily functions; or
 - serious dysfunction of any bodily organ or part; or
 - with respect to a pregnant woman who is having contractions – that there is inadequate time to effect a safe transfer to another hospital before delivery, or that the transfer may pose a threat to the health or safety of the woman or her unborn child.
22. Uncompensated care is care provided to uninsured persons for which payment is due but cannot be collected.
23. A survey of individuals in a Los Angeles emergency room showed that 38% of respondents would trade their current emergency room visit for a visit to a doctor's office within three days (Grumbach et al., 1993).
24. Treatment of the uninsured in emergency rooms is not, however, the main reason that they are overcrowded in the United States. Rather, the main group contributing to such overcrowding is individuals with Medicaid. They often seek care in emergency departments because they are unable to find a primary care physician willing to treat them for Medicaid fee rates, which are set by the government.
25. They define the underinsured as insured persons with at least one of the following three indicators of financial exposure relative to income: out-of-pocket medical expenses for care amounted to 10% of income or more; among low-income adults (below 200% of the federal poverty line), medical expenses amounted to at least 5% of income; or deductibles equalled or exceeded 5% of income.
26. The underinsured in the 19-64-age group correspond to approximately 9% of the total population in 2007.
27. A deductible is the amount of healthcare costs that the individual must pay per year before receiving any reimbursements from the health insurance company. A copayment is the fixed amount the individual pays each time they purchase an insured medical good or service. Coinsurance means that the patient pays a percentage of each medical bill.
28. Moral hazard, of course, is also a concern in social insurance schemes.
29. The other factors that account for this difference in loading charges are: that fixed costs of administering a plan can be spread over more beneficiaries in a large-group plan; and that such plans can negotiate lower premiums with insurers, lowering their profit margins.
30. The typical worker is assumed to be in the 15% federal income tax bracket and to face a 5% state tax rate and a 15.3% combined payroll tax rate.
31. Out-of-pocket expenses include both cost sharing and payments for healthcare services that are not covered by insurance. The latter payments can be thought of as an extreme form of cost sharing, in which the patient cost share is 100%.
32. Gruber and Lettau (2004) find an elasticity of firms offering health insurance to their employees with respect to the after-tax price of health insurance of -0.3, with this response being concentrated in small firms. Assuming that the tax exemption reduces the after-tax price of health insurance by 35%, removing it would increase this price by 50%, leading to a 15% decline in firms offering health insurance. There is also empirical evidence (Gruber and Washington, 2005) that changes in the after-tax price of employer-sponsored health insurance do not affect the odds of employees taking it up. Together, these pieces of evidence do not support the view that removal of the tax exclusion would lead to the collapse of individual employer-sponsored schemes.

33. Gruber (2008) assumes that tax credits of USD 380 per individual and USD 950 per family are given to those with incomes between 300% and 400% of the poverty line, falling to USD 120 per individual and USD 340 per family for those earning between 400% and 500% of the poverty line.
34. Employers are required to establish a Section 125 “cafeteria plan”, but not to fund it. Participation in the fund by the employee, however, qualifies him or her for the federal tax exclusion.
35. In the Republican Presidential candidate’s programme, termination of the tax exclusion would be accompanied by tax credits for persons purchasing health insurance.
36. Gruber (2008) considers the effects of extending Medicaid to all individuals under 100% and 185% of the poverty line, respectively as a stand-alone reform. The more restrictive expansion would reduce the number of uninsured persons by 5 million. The deadweight costs of crowding out private insurance would be modest in this case – the crowd-out rate (1-change in uninsured/change in publicly insured) is only 17%. Such an expansion in Medicaid would cost approximately USD 26 billion per year. The larger expansion would reduce the number of uninsured persons by 10 million but would have a much higher crowd-out rate (25%). This policy would cost USD 47 billion.
37. This would occur if the increase in health expenditure resulting from the measures to reduce the after-tax price of health insurance outweighed the reduction caused by the abolition of the tax exclusion, which has been estimated to be 4½ per cent to 14½ per cent of total health expenditure (Feldman and Dowd, 1991).
38. The CBO (2007a) estimates labour-supply elasticities by earnings groups, to be the following: lowest decile, 0.168; second decile, 0.126; third and fourth deciles, 0.084; fifth and sixth deciles, 0.063; and top four deciles, 0.028.
39. Medicare Parts A, B, and C pre-date Part D. Generally speaking, Medicare Part A is free to eligible recipients and helps pay for in-hospital care. Part B is optional and helps pay for regular medical care (e.g., doctor’s bills, X-rays, laboratory tests). Individuals who choose to enrol in Part B must pay a premium, a deductible and co-payments. Medicare Part C (originally called Medicare + Choice, renamed Medicare Advantage in 2003 when certain rules were changed under the MMA to give enrollees better benefits and lower costs) became available in 1997 to persons eligible for Part A and enrolled in Part B. Under Part C, private health insurance companies can contract with the federal government to offer Medicare benefits through their own policies. Until recently, insurance companies that did so could offer Medicare beneficiaries health coverage not only through private fee-for-service (PFFS) plans, but also through managed care plans (such as HMOs) and Preferred Provider Organisations (PPOs). Following recent legislation, Medicare Advantage PFFS plans must be converted into PPOs. For more information, see www.medicare.org/index.php?option=com_frontpage&Itemid=1.
40. The CBO (2007a) estimates that ageing accounts for 27% of the total projected increase in spending on Medicare, Medicaid, and Social Security as a share of GDP through 2050 and 20% through 2082, assuming that ageing is the only factor driving growth in spending for these entitlement programmes (i.e., assuming that healthcare costs per capita rise at the same rate as GDP per capita). Alternatively, if the ageing factor were removed from the projections, spending on these entitlement programs as a share of GDP would be 39% lower through 2050 than if ageing were a factor in the calculations and 38% lower through 2082. The ageing effect in the second set of calculations is larger because it is amplified by faster growth in healthcare costs per individual than in GDP per capita.

Bibliography

- American Medical Associations (AMA) (2008), “Member Connect Survey: Physicians’ reactions to the Medicare Physician Payment Cuts”, American Medical Association Division of Market Research and Analysis.
- Anderson, G., U. Reinhardt, P. Hussey, and V. Petrosyan (2003), “It’s The Prices, Stupid: Why The United States Is So Different From Other Countries”, *Health Affairs* 22.3: 89-105.
- Angrisano, C., D. Farrell, B. Kocher, M. Laboissiere, S. Parker (2007), “Accounting for the Cost of Health Care in the United States”, McKinsey Global Institute, January.
- Bernanke, B. (2008), “Challenges for Health-Care Reform”, Speech at the Senate Finance Committee Health Reform Summit, Washington DC, Board of Governors of the Federal Reserve System.
- Blumberg, L.J. (2001), “Potential for expanding coverage”, Tax Policy Center.

- Bundorf, M.K., and M.V. Pauly (2006), "Is health insurance affordable for the uninsured?" *Journal of Health Economics* 25, 650-673.
- Card, D., C. Dobkin and N. Maestas (2007), Does Medicare Save Lives?' *NBER Working Paper* No. 13668, November.
- Chandra A., J. Gruber and R. McKnight (2007), "Patient Cost-Sharing, Hospitalization Offsets, and the Design of Optimal Health Insurance for the Elderly", *NBER Working Paper* No. 12972.
- Chernew, M., D. Cutler, and P. Keenan (2005), "Increasing Health Insurance Costs and the Decline in Insurance Coverage", *Health Services Research* 40.4:1021-1039.
- Clemans-Cope, L., and B. Garrett (2007), "Changes in Employer-Sponsored Health Insurance Sponsorship, Eligibility, and Participation: 2001 to 2005," Kaiser Commission on Medicaid and the Uninsured, Publication No. 7599.
- Cogan, J.F., R.G. Hubbard, and D.P. Kessler (2005), *Healthy, Wealthy, and Wise: Five Steps to a Better Health Care System*, Washington DC, AEI Press.
- Congressional Budget Office (2007a), "The Effect of Tax Changes on Labour Supply in CBO's Microsimulation Tax Model", Background paper, April.
- Congressional Budget Office (CBO) (2007b), *The Long-Term Outlook for Health Care Spending*, Washington DC.
- Congressional Budget Office (CBO) (2007c), *CBO's Health Insurance Simulation Model: A Technical Description*, Washington DC.
- Congressional Budget Office (CBO) (2008), "Opportunities to increase efficiency in health care", Statement of Peter R. Orszag at the Health Reform Summit of the Committee on Finance, US Senate.
- Congressional Research Service (CRS) (2008), "Health Insurance Reform and the 110th Congress", June.
- Cutler, D., (2007), "The Lifetime Costs and Benefits of Medical Technology", *Journal of Health Economics* 26.6:1081-1100.
- Cutler, D. and M. McLellan (2001), "Is Technological Change in Health Care Worth It?", *Health Affairs*, 20 No. 5, pp. 11-29.
- Danzon, P., and M. Furakawa (2008), "International Prices and Availability of Pharmaceuticals In 2005", *Health Affairs* 27.1:221-233.
- Doyle, J. (2005), "Health Insurance, Treatment and Outcomes: Using Auto Accidents as Health Shocks", *NBER Working Paper* 11099, February.
- Dubay L., Holahan J. and Cook A. (2006), "The Uninsured and the Affordability of Health Insurance Coverage", *Health Affairs* (Web Exclusive), November.
- Feldman R., and B.E. Dowd (1991), "A New Estimate of the Welfare Loss of Excess Health Insurance", *American Economic Review*, Vol. 81, No. 1, March 1991, pp. 297-301.
- Fogel, R. (2004), *The Escape from Hunger and Premature Death, 1700-2100*, Cambridge University Press.
- Frank, R. G. and J. P. Newhouse (2007), "Mending the Medicare Prescription Drug Benefit: Improving Consumer Choices and Restructuring Purchasing", *Hamilton Project Discussion Paper 2007-03*, April, The Brookings Institution.
- Frank, R. G. and J. P. Newhouse (2008), "Should drug prices be negotiated under Part D of Medicare? And if so, how?", *Health Affairs*, Vol. 27, No. 1.
- GAO, (2008), *Competitive bidding for medical equipment and supplies could reduce program payments, but adequate oversight is critical*, 6 May.
- Glied, S. and B. Mahato (2008), "The Widening Health Care Gap between High-and-Low-Wage Workers", *Commonwealth Fund Publication* No. 1129, www.commonwealthfund.org.
- Gruber, J. (2008), "Covering the uninsured in the US", *NBER Working Paper* No. 13758, January.
- Gruber, J. and M. Lettau (2004), "How Elastic is the Firm's Demand for Health Insurance?", *Journal of Public Economics*, No. 88, pp. 1273-1294.
- Gruber, J., and B. Madrian (1996), "Health Insurance and Early Retirement: Evidence from the Availability of Continuation Coverage", in *Advances in the Economics of Ageing*, David Wise, ed.; pp. 115-143.

- Gruber, J., and E. Washington (2005), "Subsidies to Health Insurance Premiums and the Health Insurance Market", *Journal of Health Economics*, No. 24, pp. 253-276.
- Grumbach, K., D. Keene and A. Bindman (1993), "Primary Care and Public Emerging Department Overcrowding", *American Journal of Public Health*, Vol. 83, Issue 3, pp. 372-378.
- Hadley, J. and J. Holahan (2004), "The Cost of Care for the Uninsured: What Do We Spend, Who Pays and What Would Full Coverage Add to Medical Spending?", Issue Update No. 7804, Washington: Kaiser Commission on Medicaid and the Uninsured, 10 May.
- Hattersly, Lin (1999), "Trends in Life Expectancy by Social Class – An Update", *Health Statistics Quarterly*, Vol. 2 (Summer 1999), pp. 16-24, Office for National Statistics.
- Herring, B. (2005), "The Effect of the Availability of Charity Care to the Uninsured on the Demand for Private Health Insurance", *Journal of Health Economics* 24.2: 225-252.
- Institute of Medicine (2002), *Care without Coverage: Too Little, Too Late*, Washington; National Academy Press.
- Jacobs, P., and G. Claxton (2008), "Offer Rates for Smaller Establishments by Business Age," Kaiser Family Foundation, May 2008.
- Joumard, I., C. André, C. Nicq, and O. Chatal (2008), Health Status Determinants: Lifestyle, Environment, Health Care Resources and Efficiency, *Economics Department Working Papers* No. 627, OECD, Paris.
- Keehan, S., A. Sisko, C. Truffer, S. Smith, C. Cowan, J. Bisal, M. Clemens, and the National Health Expenditure Accounts Projections Team (2008), "Health Spending Projections Through 2017: The Baby-Boom Generation Is Coming to Medicare", *Health Affairs* 27.2: w145-w155.
- Kessler, D. and M. McClellan (1996), "Do Doctors Practice Defensive Medicine?", *The Quarterly Journal of Economics*, Vol. 2, May, pp. 353-390.
- Kitagawa, E. M. and P. M. Hauser (1973), *Differential Mortality in the United States: A Study in Socioeconomic Epidemiology*, Cambridge, Massachusetts, Harvard University Press.
- Kronick, R., and T. Gilmer (1999), "Explaining the decline in health insurance coverage, 1979-1995," *Health Affairs* 18.2:30-47.
- Kunst, A. E., V. Bos, O. Andersen, et al. (2004), "Monitoring of trends in socioeconomic inequalities in mortality: experiences from a European project", *Demographic Research*, Special Collection 2, Article 9, 229-254.
- Lemieux, J., T. Chovan and K. Heath (2008), "Medigap Coverage and Medicare Spending: A Second Look", *Health Affairs*, Vol. 27, No. 2.
- Leonhardt, D. (2008), "High Medicare costs, courtesy of Congress", *New York Times*, 25 June.
- Manning, W., et al. (1987), "Health Insurance and the Demand for Medical Care", *American Economic Review* 77.3, 251-277.
- Medicare Payment Advisory Committee (MedPAC), (2008), *March 2008 Report to the Congress*.
- Meara, E., S. Richards, and D. Cutler (2008), "The Gap Gets Bigger: Changes in Mortality and Life Expectancy by Education, 1981-2000", *Health Affairs* 27, No. 2, pp. 350-360.
- Meara, E., M. Rosenthal, A. Sinaiko and K. Baicker (2008), "State and Federal approaches to health reform: what works for the working poor?", *NBER Working Paper* No. 14125.
- Murphy, K., and R. Topel (2006), "The Value of Health and Longevity," *Journal of Political Economy* 114.4:871-904.
- New Zealand Department of Health (2007), *Social Report*.
- Nolte, E., and C.M. McKee (2008), "Measuring the Health of Nations: Updating an Earlier Analysis," *Health Affairs* 27.1:58-71.
- Ohsfeldt, R.L., and J.E. Schneider (2006), *The Business of Health: the Role of Competition, Markets, and Regulation*, Washington, AEI Press.
- OECD (2007), *Health at a Glance, OECD Indicators*, Paris.
- OECD (2008), *Pharmaceutical Pricing Policy in a Global Market*, Paris.
- Phelps, C.E. (2002), *Health Economics*, 3d ed. (Boston: Addison-Wesley, 2002), 343.

- Rodwin, M., H. Chang, and J. Clausen (2006), "Malpractice Premiums and Physicians' Income: Perceptions of a Crisis Conflict with Empirical Evidence", *Health Affairs* 25, No. 3, pp. 750-758.
- Schoen, C., S. Collins, J. Kriss and M. Doty (2008), "How Many are Underinsured? Trends Among US Adults, 2003 and 2007", *Health Affairs* 27, No. 4, W298-W309.
- Singh, G. K., and M. Siahpush (2006), "Widening Socioeconomic Inequalities in US Life Expectancy, 1980-2000", *International Journal of Epidemiology* 2006; 35, pp. 969-979, Oxford University Press.
- Skinner, J.S., D.O. Staiger, and E.S. Fisher (2006), "Is Technological Change In Medicine Always Worth It? The Case Of Acute Myocardial Infarction", *Health Affairs* 25.2: w34-w47.
- Sturm, R. (2002), "The Effects of Obesity, Smoking and Drinking on Medical Problems and Costs", *Health Affairs*, Vol. 21, No. 2, pp. 245-253, March/April.
- The Kaiser Family Foundation and Health Research and Education Trust (2007), "Employer Health Benefits, 2007 Summary of Findings".
- Thompson, D. and A. Wolfe (2001), "The Medical-Care Burden of Obesity", *Obesity Reviews*, No. 2, International Association for the Study of Obesity, pp. 189-197.
- Thorpe, K., D. Howard, and K. Galactionova (2007), "Differences In Disease Prevalence As A Source of the US-European Health Care Spending Gap", *Health Affairs* 26.6: w678-w686.
- Wilkins, R., J. Bathelot and E. Ng (2002), "Trends in mortality by Neighborhood Income in Urban Canada from 1971 to 1996", *Statistics Canada, Supplement to Health Reports*, Vol. 13, Catalogue 82-003.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(10 2008 16 1 P) ISBN 978-92-64-05276-5 – No. 56415 2008

OECD Economic Surveys

UNITED STATES

SPECIAL FEATURES: FINANCIAL CRISIS, HEALTH CARE

Most recent editions

Australia, October 2008
Austria, July 2007
Belgium, March 2007
Canada, June 2008
Czech Republic, April 2008
Denmark, February 2008
Euro area, January 2007
European Union, September 2007
Finland, June 2008
France, June 2007
Germany, April 2008
Greece, May 2007
Hungary, May 2007
Iceland, February 2008
Ireland, April 2008
Italy, June 2007
Japan, April 2008
Korea, June 2007
Luxembourg, June 2008
Mexico, September 2007
Netherlands, January 2008
New Zealand, April 2007
Norway, August 2008
Poland, June 2008
Portugal, June 2008
Slovak Republic, April 2007
Spain, November 2008
Sweden, December 2008
Switzerland, November 2007
Turkey, July 2008
United Kingdom, September 2007
United States, December 2008

Non-member Countries: Most recent editions

Baltic States, February 2000
Brazil, November 2006
Bulgaria, April 1999
Chile, November 2007
China, September 2005
India, October 2007
Indonesia, July 2008
Romania, October 2002
Russian Federation, November 2006
Slovenia, May 1997
South Africa, July 2008
Ukraine, September 2007
Federal Republic of Yugoslavia, January 2003

Subscribers to this printed periodical are entitled to free online access. If you do not yet have online access via your institution's network contact your librarian or, if you subscribe personally, send an e-mail to SourceOECD@oecd.org

Volume 2008/16
December 2008

ISSN 0376-6438
2008 SUBSCRIPTION
(18 ISSUES)

OECD *publishing*

www.oecd.org/publishing

ISBN 978-92-64-05276-5
10 2008 16 1 P



9 789264 052765