

CENTRAL BANK & FINANCIAL SERVICES AUTHORITY OF IRELAND

**Financial Stability Report
2007**

Notes

1. The commentary in this report is based on data available up to end-September 2007.

2. The following symbols are used:

e estimated
f forecast
Q quarter

3. The following abbreviations are used:

AU	Australia
AT	Austria
BE	Belgium
CA	Canada
DK	Denmark
FI	Finland
FR	France
DE	Germany
GR	Greece
IE	Ireland
IT	Italy
JP	Japan
KR	Korea
LV	Latvia
LU	Luxembourg
MT	Malta
NL	Netherlands
NZ	New Zealand
NO	Norway
PL	Poland
PT	Portugal
SI	Slovenia
ZA	South Africa
ES	Spain
SE	Sweden
CH	Switzerland
UK	United Kingdom
US	United States

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<p>From an international perspective, the profitability of traditional banking activities has been in decline in recent years. Accordingly, international banks are believed to have supplemented their income from sources other than traditional banking activities. In particular, it appears the growth of the subprime, hedge fund and private equity sectors has been facilitated somewhat by the increased involvement of international banks. Notwithstanding the fact that numerous Irish banks earn significant levels of non-interest income, typically the Irish banking sector continues to earn the greater part of its earnings from traditional banking activities. A combination of exceptionally strong economic growth over the past 15 years and a booming housing market has placed the Irish banking sector in an unusual position by international standards. To some degree, this combination of developments has meant that traditional banking activities have remained highly profitable in the Irish market. Therefore, it is not obvious that credit institutions operating in the Irish market have had the same incentives to engage with non-traditional banking activities. This article documents a survey of exposures that licensed credit institutions operating in the Irish market hold in relation to the hedge fund, private equity and subprime sectors.</p>	

Foreword



I am happy to present our latest assessment of the stability of the domestic financial system. The Financial Stability Report 2007 is intended to update financial market participants and the wider public on developments in the economic and financial environment, with particular attention to the key risks.

The publication of this Report is one way in which the Central Bank & Financial Services Authority of Ireland fulfils its legal mandate, under both domestic and European law, to contribute to financial stability both at home and abroad. The Central Bank and Financial Regulator have shared responsibilities in this regard and cooperate fully on matters relating to financial stability. This Report reflects the joint views of the Bank and the Financial Regulator.

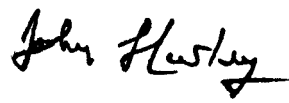
Our overall assessment is that financial stability risks have, on balance, increased since the 2006 Report. Nevertheless, the overall conclusion is that the Irish financial system's shock absorption capacity remains robust and the system is well placed to cope with emerging issues.

To date, 2007 has provided a more challenging international environment for financial stability. There has been considerable turbulence in international financial markets as problems, which arose initially in the US subprime mortgage market, spread to the European banking sector. The possible spillover effects from these events could be important for domestic financial stability because of the potential impact on the banking sector and on the economy. However, we are reassured by the fact that our credit institutions do not have significant exposures to the subprime market, either directly or indirectly, and their shock-absorption capacity is sufficient to deal with the current period of heightened stress in financial markets.

On the domestic front, this year has been a turning point in some key respects because there has been an improvement in several of the risks identified in earlier financial stability reports. In particular, the upward momentum in residential property prices has abated, thus reducing the vulnerability posed by the previous substantial increases in house prices. Furthermore, the rate of credit growth has eased and the rate of accumulation of private-sector indebtedness has moderated accordingly. Against a more uncertain international backdrop, the indications are that the domestic economy continues to perform solidly although, as indicated in the Report, downside risks remain.

I hope that the wide-ranging analyses in this Report convey to our readers the importance of a stable financial system and encourages discussion of the current financial-stability environment. The main commentary provides an analysis of domestic and international economic and financial developments

and highlights potential areas of concern relevant to the Irish financial system. There are also a number of research articles in Part 2 of the Report which provide more in-depth analyses of issues raised in the main commentary. The property market is important for financial stability and the Report includes papers on commercial property and residential property investors. The remaining articles deal with the banking sector. These include the results of a survey of banks' exposures to subprime lending, private equity and hedge funds. The issue of concentration in loan portfolios and the international dimension of Irish banks' business are also considered.

A handwritten signature in black ink, appearing to read 'John Hurley', with a stylized, cursive script.

John Hurley,
Governor.

Achoimre

Is é an measúnú foriomlán ná go bhfuil méadú tagtha tríd is tríd ar rioscaí cobhsaíochta airgeadais ó foilsíodh Tuarascáil BCÚSAÉ ar Chobhsaíocht Airgeadais don bhliain 2006. Shainaithin Tuarascáil na bliana 2006 trí phríomh-leochaileacht intíre do chobhsaíocht airgeadais: fás tréan creidmheasa agus féichiúnas atá ag ardú, móiminteam aníos i bpraghsanna tithe agus droch-thionchar ualaí aisíocaíochta méadaitheacha ar dhea-bhail earnáil an teaghlaigh. Ó shin, tharla roinnt feabhsuithe maidir le rioscaí intíre agus fáiltítear rompu seo. Ar an gcéad dul síos, tá maolú tagtha ar an móiminteam aníos i bpraghsanna na réadmhaoine cónaithe, rud a laghdaíonn an leochaileacht a bhí ann mar thoradh ar an méadú suntasach a tharla roimhe sin i bpraghsanna tithe. Ar an dara dul síos, mhoilligh ráta fáis creidmheasa agus mhaolaigh ráta carntha fhéichiúnais na hearnála príobháidí dá réir. Tá saincheisteanna tagtha chun cinn, áfach, maidir leis an ngeilleagar intíre mar thoradh ar an dul in olcas níos fadtéarmaí san iomaíochas, an laghdú sa mhéid a dhéanann an ghníomhaíocht in earnáil na foirgníochta cónaithe chun cur leis an bhfás foriomlán, agus na héifeachtaí a d'fhéadfadh a bheith ag an tsuaiteacht sna margaí airgeadais idirnáisiúnta. D'eascair an tsuaiteacht seo de réir mar a leathnaigh fadhbanna i margadh na morgáistí fophríomha i SAM go dtí go raibh athphraghsáil rioscaí i roinnt margaí airgeadais. Cé gur céim í seo ar an mbealach chuig praghsáil níos normalaithe riosca, d'fhéadfadh tábhacht a bhaint le haon éifeachtaí iarmhartacha a leanfadh ón gcoigeartú seo do chobhsaíocht airgeadais sa bhaile agus i gcéin mar gheall ar an anáil phoitéinsiúil ar earnáil na baincéireachta agus ar an ngeilleagar. Táthar ag súil go bunúsach, áfach, bunaithe ar mheasúnú na rioscaí atá i ndán d'earnáil an teaghlaigh agus don earnáil chorparáideach neamh-airgeadais, ar dhea-bhail earnáil na baincéireachta agus ar thorthaí na tástála intí ar strus a rinneadh le déanaí, d'ainneoin na suaiteachta sna margaí airgeadais idirnáisiúnta, go leanfaidh córas baincéireachta na hÉireann de bheith i riocht maith chun teacht slán ó fhorbairtí codarsnacha eacnamaíocha agus earnálacha sa ghearrthéarma agus anonn sa mheántéarma.

Measúnú foriomlán

Baineann neamhchinnteacht idirnáisiúnta méadaithe le héifeachtaí iarmhartacha na bhfadhbanna in earnáil na morgáistí fophríomha i SAM. Go luath i 2007, tharla lagú

géar sna margaí cothromais domhanda, áit ar oibrigh athmheasúnú diúltach den dearcadh geilleagrach i SAM mar cheann tiomána. Chlaochlaigh sé seo, níos déanaí sa bhliain, go dtí an tréimhse thuasluaite ina raibh mórshuaiteacht sna margaí. Ba iad príomhthréithe na suaiteachta seo ná luaineacht a bhí ag méadú, leachtacht a bhí ag laghdú agus athphraghsáil géar riosca. Rud tábhachtach a rannchuidigh leis seo ná go rabhtas ag éirí i bhfad níos buartha, ó lár 2007 ar aghaidh, faoi neamhchosaint réimse leathan d'urrúis a bhí bainteach le morgáistí agus táirgí struchtúrtha creidmheasa ar chaillteanais mhéadaitheacha i margadh na morgáistí fophríomha i SAM. Mar thoradh ar neamhchinnteacht maidir le méid agus dáileadh na neamhchosaintí ar rioscaí creidmheasa agus caillteanais bhainteacha mhéadaigh an drogall roimh riosca a thuilleadh. Dá bharr sin bhí tionchar géar ag athphraghsáil leanúnach riosca creidmheasa i gcoitinne a leathnaigh agus a bhí le feiceáil mar mheon an-diúltach i leith an mhargaidh do mhaoiniú gearrthéarmach comhthaobhaithe. Chuir sé seo isteach ar shreafaí leachtachta na mbanc, de réir mar a bhí sé ag éirí níos deacra páipéar tráchtála faoi chumhdach sócmhainne (ABCP) a rolladh thart. I dteannta leis an neamhchinnteacht faoi neamhchosaintí na mbanc do shócmhainní rioscúla, mhéadaigh an imní maidir le riosca contrapháirtí agus thosaigh fadhbanna ag síneadh amach go dtí an margadh idirbhainc. Thosaigh roinnt banc ceannais, ag leanúint lorg an BCE, ag frithghníomhú go pras chun na fadhbanna seo a mhaolú trí instealltaí substaintiúla leachtachta a sholáthar. Mhaolaigh na gníomhartha seo na fadhbanna ag an taobh an-ghearr den mhargadh idirbhainc cé nach bhfuil coigeartú iomlán déanta fós ag rátaí níos fadtéaramaí agus go bhfuil na raonta difríochta idir na rátaí seo agus rátaí beartais i gcónaí cuíosach leathan. Tríd is tríd, áfach, beidh an trasdul chuig praghsáil riosca níos normalaithe tairbhiúil do chobhsaíocht airgeadais idirnáisiúnta san fhadtéarma.

Tá na héifeachtaí iarmhartacha a d'fhéadfadh eascair ón luaineacht a bhí ann le déanaí i margaí airgeadais tábhachtach do chobhsaíocht airgeadais mar gheall ar an tionchar poitéinsiúil ar an bhfíorgheilleagar, go domhanda agus in Éirinn. Baineann na rioscaí ón ngeilleagar idirnáisiúnta leis an neamhchinnteacht breise maidir le hionchais fháis dhomhanda agus leis an imní mhéadaithe i measc infheisteoirí, ós rud é go bhféadfadh préimheanna riosca ardú agus go mbeidh coinníollacha

creidmheasa níos teinne le hiarmhairtí codarsnacha don fhás eacnamaíoch thar na príomhréigiúin. Tugann réamhaisnéisí ó na príomhinstitiúidí eacnamaíocha idirnáisiúnta le tuiscint go mbaineann na rioscaí taobh thíos is troime le SAM. Bhí an geilleagar domhanda agus geilleagar limistéar an euro ag fás go téagartha sular ar thosaigh an tsuaiteacht sna margaí le déanaí agus siúd is gur chosúil go gcabhróidh sé seo lena n-athléimneacht, bhainfeadh moilliú mór i bhfás SAM cuid mhaith den spreagadh on ngníomhaíocht sa chuid eile den domhan. Go háirithe, fágann na naisc shuntasacha trádála agus infheistíochta idir Éirinn agus SAM go bhfuil geilleagar na hÉireann thar a bheith leochaileach do mheathlú ar bith san fhás i SAM. Tá an riosca idirnáisiúnta seo do gheilleagar na hÉireann ann de bhreis ar shaincheisteanna leanúnacha maidir le praghsanna fuinnimh atá ard agus luaineach agus an seans go bhféadfadh an euro láidriú a thuilleadh i gcoinne dollar SAM mar chuid de phróiseas chun míchothromaíochtaí idirnáisiúnta i gcuntais reatha a cheartú.

Bhí drochthionchar ag imeachtaí a tharla le déanaí ar an gcóras idirnáisiúnta baincéireachta, go díreach mar gheall ar chaillteanas na mbanc ina sócmhainní fophríomha i SAM, agus go hindíreach trí sheilbh a bheith acu ar infheistíochtaí atá oscailte do chaillteanas fhophríomha SAM, mar gheall ar cheangaltais chreidmheasa do chainéil/fheithiclí sainchuspóireacha agus mar gheall ar chur isteach ginearálta ar ghnó. Ina leith sin, níl na bainc intíre ag tuairisciú go bhfuil aon neamhchosaint mhór dhíreach acu ar mhorgáistí fophríomha SAM agus nach bhfuil ach neamhchosaint an-teoranta acu trí infheistíochtaí agus línte creidmheasa a cuireadh ar fáil do chomhlachtaí airgeadais eile nó do fheithiclí sainchuspóireacha. Is ar éigean a laghdaíodh cumas na mbanc intíre chun turraingí a ionsú mar thoradh ar na tarlúintí seo.

Sa mhéid a bhaineann leis an bpríomhfhorbairt intíre, laghdaigh an maolú suntasach i bhfás praghsanna na tithíochta cónaithe cuid de na príomhábhair imní a luadh i dTuarascáil na bliana seo caite. Cé gur mhéadaigh praghsanna tithe ar bhonn náisiúnta beagnach 12 faoin gcéad ar an meán sa bhliain 2006, mhoilligh siad go suntasach sa dara leath den bhliain. Lean an moilliú i 2007 agus anois tá praghsanna thart ar 3½ faoin gcéad níos ísle ar bhonn bliain-go-dáta. Ba chóir na forbairtí seo a mheas in aghaidh na ngnóthachán i bpraghsanna tithe le blianta beaga anuas. Thairis sin, tá laghdú tagtha ar an imní go ngluaisfeadh praghsanna tithe i dtreo go mbeadh siad níos lú i gcomhréir leis na buntosca agus go rachadh inacmhainneacht tithíochta in olcas ó foilsíodh Tuarascáil

na bliana seo caite. Maidir le forbairtí i bpraghsanna tithe amach anseo, tá tábhacht faoi leith ag baint le tosca amhail rannpháirtíocht infheisteoirí sa mhargadh réadmhaoine, inbhuanaitheacht rátaí reatha inimirce, an treo a leanfaidh beartas airgeadaíochta sa todhchaí agus feidhmiú mhargadh an tsaothair agus dealraíonn sé go bfuil na buntosca i gcónaí láidir. Tugann cnámha lárnacha an scéil le tuiscint, mar sin, gur cosúla go mbeidh tuirlingt bhog ná tuirlingt chrua ann.

Leanann ráta carnaithe fiachais teaghlach agus corparáidí neamh-airgeadais de bheith ag maolú don dara bhliain as a chéile. Tá an ráta reatha i gcónaí ard, áfach, de réir comparáidí idirnáisiúnta. Bhí méadú tagtha ar an gcóimheas idir creidmheas na hearnála príobháidí agus OTN in Éirinn sna blianta atá díreach thart, rud a léiríonn leibhéal na gníomhaíochta geilleagraí i gcoitinne agus, go háirithe, an t-éileamh méadaithe ar thithíocht agus ghníomhaíocht infheistíochta. Cé go gcuireann ardleibhéal fiachais leochaileacht na hearnála príobháidí do thurraingí ioncaim agus rátaí úis, tá tosca maolaitheacha tábhachtacha ann freisin amhail glanfhiúchas foriomlán na hearnála agus an dearcadh dearfach atá ann maidir leis an ngeilleagar agus nuair a déantar measúnú orthu siúd in éineacht leis an moilliú san iasachtaíocht laghdaíonn siad an leochaileacht seo beagáinín.

Tá ualaí aisíocaíochta teaghlach cobhsaithe beagáinín ó foilsíodh Tuarascáil na bliana seo caite ach tá an dearcadh i gcónaí neamhchinnte. Chobhsaigh na hualaí aisíocaíochta toisc gur lean ioncaim indiúscartha teaghlach de bheith ag fás go láidir agus chuidigh athruithe cánach sa bhuiséad chun na costais bhreise a bhain le méaduithe éagsúla i rátaí úis a tharla roimhe sin a chealú. Tá earnáil an teaghlaigh i gcónaí leochaileach do rátaí níos airde úis, áfach, toisc go bhfuil formhór na morgáistí reatha chomh maith le sreabhadh iasachtaí nua morgáiste ag rátaí athraitheacha.

I gcomhthéacs idirnáisiúnta níos neamhchinnte tá comharthaí ann go bhfuil an geilleagar intíre ag feidhmiú go téagartha i gcónaí. Tríd is tríd tá an scéal maidir le fás eacnamaíoch sásúil i gcoitinne sa timpeallacht idirnáisiúnta atá neamhchinnte faoi láthair i ndiaidh tréimhse ina raibh an fás ard. Ar an taobh dearfach den scéal, tá na buntosca eacnamaíocha — riocht buiséadach maith, fás eacnamaíoch láidir, geilleagar inoiriúnaithe — i gcónaí fóna. Táthar ag súil le díluasghéarú éigin san fhás geilleagrach i 2008, ach tá réamh-mheastacháin fháis i gcónaí cuíosach dearfach de réir caighdeáin idirnáisiúnta. De réir mar a mhoillíonn an fás

geilleagrach, is cosúil go n-ardóidh an ráta dífhostaíochta. Táthar ag súil, áfach, go mbeidh an méadú seo cuíosach beag agus táthar ag tuar go bhfanfaidh an geilleagar gar dá riocht de lánfhostaíocht. Thairis sin, de réir mar atá fás an aschuir intíre ag lagú, táthar ag súil go n-ísleoidh brúnna boilscitheacha sa gheilleagar freisin.

In ainneoin na timpeallachta geilleagraí seo atá réasúnta fabhrach, tá líon áirithe rioscaí fós ann agus táthar buartha go rachaidh rioscaí éagsúla díobh seo i gcion ar an ngeilleagar ag an am chéanna. Ó pheirspictíocht intíre, táthar imníoch i gcónaí faoin sciar ard atá ag earnáil na foirgníochta sa ghníomhaíocht eacnamaíoch, cé go bhfuil sé seo ag titim, agus faoi na cailteanais níos fadtéarmaí san iomaíochas. Táthar ag súil go dtitfidh sciar ard na foirgníochta de réir a chéile sna blianta amach romhainn, agus go ndéanfar an laghdú i ngníomhaíocht chónaitheach a fhritháireamh ar bhealach le fás láidir leanúnach i bhfoirgníocht na hearnála poiblí agus na hearnála príobháidí neamhchónaithe. Léiríonn meathlú an iomaíochais tosca éagsúla lena n-áirítear praghsanna agus costais táirgthe atá ag ardú i gcomparáid lenár gcomhpháirtithe trádála, láidriú ráta malairte an euro, go háirithe i gcoinne an dollar agus fás níos laige táirgiúlachta. Ag féachaint d'oscailteacht an gheilleagair, tá Éire thar a bheith leochaileach do thurraingí domhanda. Chomh maith leis an tsuaiteacht reatha sna margaí, tá saincheisteanna i gcónaí ann a bhaineann le praghsanna arda luaineacha fuinnimh mar aon le láidriú breise an euro i gcoinne dollar SAM mar chuid de phróiseas chun míchothromaíochtaí na gcuntas reatha idirnáisiúnta agus neamhchinnteachtaí maidir le geilleagar SAM a cheartú.

Tá dhá fhorbairt eile ann ó foilsíodh an Tuarascáil dheiridh ar fiú breathnú orthu. Ar an gcéad dul síos, murab ionann agus an margadh cónaitheach, tá praghsanna na maoine tráchtála i gcónaí ag luachmhéadú ag rátaí atá cuíosach ard. D'fheidhmigh margadh na maoine tráchtála go láidir feadh gach

earnála (i.e. earnálacha na n-oifigí, na miondíola agus an tionscail) i 2006 agus go luath i 2007, le luachmhéadú caipitiúil ag baint ráta bliantúil de 24 faoin gcéad amach anuraidh. Bhíothas buartha ní hamháin toisc go raibh rátaí fáis chaipitil i margadh na maoine tráchtála ard ach freisin toisc gur dhealraigh sé gur eisiréimnigh siad ó rátaí fáis comhfhreagracha cíosanna sa tslí gur tiomáineadh fáltais chuig na leibhéil is ísle dá raibh riamh ann. Dá bhrí sin fáiltítear roimh an maolú atá tosaithe i luas an luachmhéaduithe chaipitiúil, roimh an laghdú atá ag teacht ar an mbearna idir fhás caipitiúil agus fás cíosanna, agus roimh an laghdú fadtéarmach i bhfáltais in Éirinn atá ar aon dul lena bhfuil ag tarlú go hidirnáisiúnta de réir dealraimh.

Ar an dara dul síos, tá éifeacht chomhcheangailte ag corrlaigh ísle glanúis agus costais mhaoinithe níos airde ar earnáil na baincéireachta i dtimpeallacht ina bhfuil toirt an fháis níos ísle. D'fhéadfadh margadh tithíochta níos moille in éineacht le fás geilleagrach atá rud beag níos moille agus anáil na suaiteachta reatha i margaí airgeadais ar thoilteanas na mbanc chun iasachtaí a sholáthar, cuidiú chun toirt an fháis a ísliú amach anseo. I gcomhthéacs ina mbaineann na leochaileachtaí agus na rioscaí seo leis na hionchais don gheilleagar, ní mór córas baincéireachta folláin a bheith ann atá i gcumas turraingí a ionsú i dtreo gur féidir leis córas airgeadais cobhsaí a chothú. Tá dea-bhail i gcónaí ar an gcóras baincéireachta arna thomhas ag na gnáththáscairí: sócmhainneacht, brabúsacht, leachtacht, caighdeán sócmhainní agus táscairí margaidh. Táthar ag súil go bunúsach, bunaithe ar mheasúnú na rioscaí atá i ndán d'earnáil an teaghligh agus don earnáil chorparáideach neamh-airgeadais, ar dhea-bhail earnáil na baincéireachta agus ar thorthaí na tástála intí ar strus a rinneadh le déanaí, d'ainneoin na suaiteachta sna margaí airgeadais idirnáisiúnta, go leanfaidh an córas baincéireachta de bheith i riocht maith chun teacht slán ó fhorbairtí codarsnacha eacnamaíocha agus earnálacha sa ghearrthéarma agus anonn sa mheántéarma.

Summary

The overall assessment is that financial stability risks have on balance increased since the CBFSAI's Financial Stability Report 2006. The 2006 Report identified three major domestic vulnerabilities for financial stability: strong credit growth and rising indebtedness, upward momentum in house prices and the adverse impact of increasing repayment burdens on the health of the household sector. Since then, there has been a number of welcome improvements with respect to domestic risks. First, the upward momentum in residential property prices has abated, thus reducing the vulnerability posed by the previous substantial increase in house prices. Second, the rate of credit growth has eased and the rate of accumulation of private-sector indebtedness has moderated accordingly. However, issues have arisen with respect to the domestic economy arising from the longer-term deterioration in competitiveness, the moderation in the contribution of residential construction-sector activity to overall growth, and the possible effects of international financial-market turbulence. This turbulence arose as problems in the US subprime mortgage market broadened into a repricing of risk in a number of financial markets. Although this is a transition to a more normalised pricing of risk, the possible spillover effects from this adjustment could be important for financial stability both at home and abroad because of the potential impact on the banking sector and on the economy. However, the central expectation, based on an assessment of the risks facing both the household and non-financial corporate sectors, the health of the banking sector and the results of recent in-house stress testing is that, notwithstanding the international financial market turbulence, the Irish banking system continues to be well placed to withstand adverse economic and sectoral developments in the short to medium term.

Overall Assessment

Increased international uncertainty is associated with the fallout arising from problems in the subprime mortgage sector in the US. In early-2007, there was a sharp weakening in global equity markets, where the key driver was a negative re-assessment of the economic outlook in the US. This developed, later in the year, into the period of severe market turbulence mentioned above and was characterised by rising volatility, declining liquidity and a sharp repricing of risk. An important contributing factor was a significant heightening of

concern, from mid-2007 onwards, about the exposure of a wide range of mortgage-related securities and structured credit products to mounting losses in the US subprime mortgage market. Uncertainty about the size and distribution of credit risk exposures and related losses caused risk aversion to heighten further. This triggered a sharp spillover from the ongoing repricing of credit risk generally to particularly negative sentiment towards the market for collateralised short-term financing. This disrupted banks' liquidity flows, as asset-backed commercial paper (ABCP) became increasingly difficult to rollover. Allied to the uncertainty about banks' exposures to risky assets, concerns about counterparty risk heightened and problems began to spillover to the interbank market. A number of central banks, led by the ECB, reacted promptly to alleviate these problems through the provision of substantial liquidity injections. These actions alleviated the problems at the very short-end of the interbank market, although longer-term rates have not yet fully adjusted and spreads between these rates and policy rates remain relatively wide. Overall though, the transition to a more normalised pricing of risk will be beneficial for international financial stability in the long run.

The possible spillover effects from recent volatility in financial markets are important for financial stability because of the potential impact on the real economy, both globally and in Ireland. The risks from the international economy relate to the heightened uncertainty about global growth prospects and increased investor nervousness, with the possibility that risk premia will rise and credit conditions will be tighter with adverse consequences for economic growth across the major regions. Forecasts from the major international economic institutions suggest that the downside risks are most pronounced for the US. While the resilience of the global and euro area economies should be helped by the fact that both were growing solidly before the recent outbreak of market turbulence, a marked slowdown in US growth would remove considerable impetus to activity in the rest of the world. In particular, the significant trade and investment links between Ireland and the US leave the Irish economy particularly vulnerable to any downturn in growth in the US. This international risk to the Irish economy is in addition to continuing issues about high and volatile energy prices and the possibility of further strengthening of the euro

against the US dollar as part of a correction process for international current-account imbalances.

The international banking system has been negatively affected by recent events, both directly through banks' losses on their US subprime assets, and indirectly through holdings of investments exposed to US subprime losses, from credit commitments to conduits/special purpose vehicles, and from a general disruption to business. In this respect, the domestic banks report no significant direct exposures to US subprime mortgages and very limited exposures through investments and credit lines extended to other financial companies or special purpose vehicles. The domestic banks' shock absorption capacity has not been much reduced by these events.

Regarding the main domestic development, the significant easing in residential house price growth has reduced some of the key concerns noted in last year's Report. While house prices increased nationally by almost 12 per cent on average in 2006, they slowed significantly in the second half of the year. The slowdown continued in 2007 and prices are now about 3½ per cent lower on a year-to-date basis. These developments should be assessed against the gains in house prices in recent years. Furthermore, concerns that house prices would move further out of line with fundamentals and that housing affordability would worsen have lessened since last year's Report. Regarding future house price developments, factors such as investors' participation in the property market, the sustainability of current rates of immigration, the future direction of monetary policy and the performance of the labour market are all important. The underlying fundamentals of the residential market continue to appear strong. The central scenario is, therefore, for a soft, rather than a hard, landing.

The rate of accumulation of debt by households and non-financial corporates has continued to ease for a second successive year. However, the current rate remains high by international comparison. The ratio of private-sector credit to GNP in Ireland had increased in recent years reflecting the level of economic activity generally and, specifically, the increased demand for housing and investment activity. Although a high level of indebtedness increases the vulnerability of the private sector to income and interest-rate shocks, there are also important mitigating factors such as the sector's overall net worth and the positive outlook for the economy which, when assessed alongside the slowdown in borrowing, reduce this vulnerability somewhat.

Households' repayment burdens have stabilised somewhat since the publication of last year's Report but the outlook remains uncertain. Repayment burdens had stabilised because households' disposable incomes continued to grow robustly and budgetary tax changes helped offset the additional costs of some earlier interest-rate increases. The household sector remains, however, vulnerable to higher interest rates because the bulk of both the stock of existing mortgages as well as the flow of new mortgage loans are at variable rates.

Against a more uncertain international backdrop, the indications are that the domestic economy continues to perform solidly. The overall picture for economic growth is generally satisfactory in the current uncertain international environment and follows a period of high growth. On the positive side, economic fundamentals — a good budgetary position, strong employment growth, an adaptable economy — continue to be sound. The outlook is for some deceleration of economic growth in 2008, but growth projections remain reasonably positive by international standards. As economic growth slows, an upturn in the unemployment rate is likely. However, this is expected to be modest and the forecast is for the economy to remain at close to its full-employment position. Moreover, as domestic output growth weakens, inflationary pressures in the economy are expected to reduce.

Despite this relatively favourable economic environment, a number of risks remain and the concern is that the economy may be affected by several of these risks at the same time. From a domestic perspective, there are continuing concerns about the high, if declining, share of the construction sector in economic activity and the longer-term losses of competitiveness. The high share of construction is expected to decline gradually in the coming years, with the reduction in residential activity offset in part by continued strong growth in public sector and private non-residential construction. The deterioration in competitiveness reflects a number of factors including rising prices and production costs relative to our trading partners, the strengthening of the euro exchange rate, particularly against the dollar, and weaker productivity growth. Given the openness of the economy, Ireland is particularly vulnerable to global shocks. In addition to the current market turbulence, there are continuing issues about high and volatile energy prices as well as the further strengthening of the euro against the US dollar as part of a correction process for international current-account imbalances and uncertainties relating to the US economy.

There are two additional developments since the last Report which merit consideration. First, in contrast to the residential market, commercial property prices continue to appreciate at relatively high rates. The commercial property market performed strongly across all sectors (i.e., office, retail and industrial) in 2006 and early-2007, with capital appreciation reaching an annual rate of 24 per cent last year. The concern was not only that capital growth rates in the commercial property market were high, but they also appeared to have diverged from the corresponding rental growth rates such that yields were driven to unprecedented low levels. It is welcome, therefore, that the pace of capital appreciation has begun to ease, the divergence between capital and rental growth has begun to decline, and the long-run decline in yields in Ireland appears to mirror the international experience.

Second, there is the combined effect on the banking sector of low net interest margins and higher funding costs in an environment of lower volume growth. A combination of a slower housing market, somewhat slower economic growth and the impact of the current turbulence in financial markets on banks' willingness to supply loans, could all contribute to lower volume growth in the future. In the context of these vulnerabilities and risks to the economic outlook, a healthy banking system with good shock-absorption capacity is needed to support a stable financial system. The health of the banking system remains robust when measured by the usual indicators: solvency, profitability, liquidity, asset quality and market indicators. The central expectation, based on an assessment of the risks facing both the household and non-financial corporate sectors, the health of the banking sector and the results of recent in-house stress testing is that, notwithstanding the international financial market turbulence, the Irish banking system continues to be well placed to withstand adverse economic and sectoral developments in the short to medium term.

CBFSAI's Mandate

The CBFSAI's legal mandate is to contribute to the maintenance of financial stability in both Ireland and the euro area. Financial stability is an issue of major importance for both the Central Bank and the Financial Regulator. The key elements in the discharge of this mandate are to raise awareness of financial stability matters through initiatives like the publication of the annual financial stability report, maintaining a dialogue with domestic credit institutions in order to highlight issues for the financial system and, finally, to continue

to develop procedures to deal with potential disruptive events and to facilitate an orderly resolution. In relation to cross-border financial institutions, the Central Bank and Financial Regulator maintain ongoing dialogue with their counterpart central banks and financial regulators.

Economic and Sectoral Commentary

Domestic Macroeconomic Outlook

Economic growth in the Irish economy remains strong and labour market conditions remain favourable, although the projections for growth in 2007 have been revised downwards marginally since the last Report. Last year the volume of GNP increased by 6.5 per cent with a corresponding increase in GDP of 5.7 per cent. While these rates of growth were somewhat above the estimated potential growth rate of the economy, slower growth is expected during 2007 and 2008. This partly reflects developments in the residential construction sector, the output of which appears to have peaked during 2006. Private consumption growth is also expected to moderate somewhat next year as the impact of maturing SSIA funds lessens. As a result, GNP growth is projected to fall to around $4\frac{3}{4}$ per cent this year with a further decline to around $3\frac{1}{4}$ per cent in 2008. The corresponding projections for GDP growth in 2007 and 2008 are $4\frac{3}{4}$ per cent and $3\frac{1}{2}$ per cent, respectively.

The labour market continues to perform well, although the projections for unemployment have been revised upwards slightly since the publication of the last Report. Total employment increased by 4.4 per cent in 2006, with particularly strong increases in construction (9.7 per cent), health (8.2 per cent) and wholesale and retail trades (4.6 per cent). Despite some well-publicised adverse employment news recently, the aggregate data indicate that the strong labour market performance looks set to continue. As economic growth slows, an upturn in the unemployment rate is expected. However, this is expected to be modest and the forecast is for the economy to remain at close to its full-employment position.

Domestic Macroeconomic Risks

Despite the relatively favourable economic outlook, a number of significant risks remain. First, from a domestic perspective, there are concerns about the continuing high share of the construction sector in economic activity. This is expected to decline gradually in the coming years with the reduction in residential activity mitigated in part by continued strong growth in public-sector and private-non-residential construction. However, a sharper-than-expected fall in housing output

would have a negative impact on both GDP growth and employment.

A second domestic risk relates to longer-term losses of competitiveness. While the economy was in an extremely strong, but probably unsustainable, competitiveness position at the beginning of the current decade, the situation has subsequently deteriorated. As already noted, this has been due to a number of factors including rising prices and wages relative to our main trading partners, an appreciation of the exchange rate and lower productivity growth. While the overall competitiveness position of the economy does not appear to be too strained, judging from data on inward FDI flows, nevertheless, a continuation of underlying trends could lead to a more significant adjustment in the longer run.

International Macroeconomic Risks and Financial Market Developments

Given the openness of the Irish economy, its financial system is potentially vulnerable to global shocks and to the current developments in the international financial system. The most significant issue since the last Financial Stability Report has been signs of significant distress in the US subprime mortgage sector, which came to a head in early- to mid-2007. From late-June onwards, concerns were heightened about the exposure of a wide range of mortgage-related securities and structured credit products to mounting losses in the US subprime mortgage market, causing problems in the market for asset-backed commercial paper (ABCP), where investors were reluctant to rollover financing given the increased nervousness about the associated risks. Uncertainty about the size and distribution of credit risk exposures and related losses affected market conditions, and what started as a credit market sell-off quickly evolved into a bout of severe market turbulence characterised by rising volatility, declining liquidity and a sharp repricing of risk. Risk aversion heightened further when the problems — which, up to then, had been concentrated in hedge funds and US financial institutions involved in mortgage business — began to spread to the more broad-based banking sector internationally especially through banks' connections with ABCP conduits or structured investment vehicles. Thus, the generalised ongoing repricing of credit risk caused a drying up of liquidity in the collateralised short-term commercial paper market.

Allied to the uncertainty about banks' exposures to the repricing of risky assets, concerns about counterparty

risk heightened from early-August and problems began to spillover to the interbank market. With banks becoming very reluctant to lend to one another, even at very short maturities, overnight rates began to rise sharply. A number of central banks — led by the ECB — reacted promptly to alleviate problems in the interbank money market through the provision of substantial liquidity injections. These actions succeeded in alleviating the problems at the very-short end of the interbank market, with overnight rates reverting to their earlier levels. Longer-term rates, however, have not yet fully adjusted and spreads between these rates and policy rates remain relatively wide. This is likely to place upward pressure on the cost of borrowing, as will the widening of spreads on lower-rated corporate debt. There is also the possibility that creditworthy borrowers will face some rationing of credit which could have adverse implications for global growth prospects.

Prior to the above events, the outlook for the global economy was favourable but there were also risks to the outlook which could have knock-on implications for the domestic outlook. The assessment made prior to the US subprime crisis was that the international macroeconomic environment had remained supportive of financial stability given its robust pace of expansion, in spite of high and volatile oil prices, a sharp slowdown in the US housing market and earlier financial market turbulence. Risks to the inflation outlook, however, had been tilted to the upside, relating to increased capacity utilisation, high oil prices and the prospect that wage pressures would intensify as labour markets improved. As a result, monetary policy had generally been either in a stable or tightening phase. While a broader economic assessment of the implications of recent events in international financial markets depends on the duration of disturbed market conditions and the associated uncertainty, the current assessment is that the overall outlook for growth remains positive although clearly downside risks have risen somewhat. A key consideration is that, even if market liquidity improves, risk spreads are likely to remain higher on a long-term basis than they have been in recent years.

Forecasts from the major international economic institutions suggest that the downside risks are most pronounced for the US. This reflects the view that the problems in financial markets are likely to intensify the downturn in the US housing market, where forward-looking indicators of conditions were pointing lower even before the recent turbulence began. In addition to the direct impact of US housing market weakness on

GDP, the weakness of US house prices, higher mortgage rates and tighter lending terms also threaten to dampen US consumer spending, which has been the main engine of growth in recent years. While the resilience of the global and euro area economies should be helped by the fact that both were growing solidly before the recent market turbulence, a marked slowdown in US growth would remove considerable impetus to activity in the rest of the world. Quite apart from this dampening influence, however, the generalised repricing of risk and tightening of financing conditions has, of itself, moved the balance of risks to the downside for the rest of the global economy.

There is an argument that current market developments could be positive over the medium-term for international financial stability, by reversing a perceived mispricing of risk in financial markets that has persisted for a number of years. More generally, the mispricing of risk reflected excessive risk taking over the last number of years and may have pushed many asset prices beyond sustainable values. A pervasive search for yield had characterised financial markets and had driven risk premia across a very wide range of financial assets to very low levels. Although there is no clear consensus as to the ultimate driving force behind this search for yield, there is little doubt that low interest rates and easy availability of funding had boosted the appetite for risk significantly. There was always the possibility, however, that a reversal of the search for yield along with a tightening of credit could have resulted in a widespread correction of a range of asset prices which may be overvalued, as reflected in risk premia that were until recently unsustainably low.

In early-2007 and prior to recent events, longer-term market rates had begun responding more than before to the tightening in official rates. In current market conditions, longer-term rates have oscillated reflecting the offsetting impacts of expectations of higher inflation with a flight to quality. The behaviour of yields has been different for sovereign and corporate debt; government bond yields have fallen while yields on corporate bonds have increased.

Oil prices have moved higher in recent months. At the beginning of 2007 oil prices declined sharply, reaching their lowest level since mid-2005, but subsequently increased due to continuing strong demand and prevailing weather and political conditions. Looking ahead, expected robust demand, coupled with continued limited spare capacity, is likely to sustain oil

prices at relatively high levels. Futures markets suggest that oil prices will remain at high levels in the medium term.

The risk from global imbalances has not abated and remains significant. The US current-account deficit was 6.5 per cent of GDP in 2006, close to its level in the previous year. Some commentators expect a decline in the size of the deficit in 2007. However, the risk remains that any shortfall in the scale of capital flows required to finance the large US current-account deficit could pose problems for global financial stability. To date, the US authorities have had little difficulty in financing this growing external deficit. However, the stability of global foreign exchange and other financial markets is vulnerable to any significant drop in demand for US dollar assets.

Private-Sector Credit and Indebtedness

The rate of accumulation of debt by households and non-financial corporates in Ireland has continued to ease for a second successive year, although the current rate remains high by international comparison. In 2006, the annual rate of increase in total loans to the private sector was 25.4 per cent compared with 30.5 per cent in 2005. There has been a further welcome easing of year-on-year increases in private-sector credit in 2007 (the estimated annualised rate of growth for 2007 is currently about 19 per cent) and, accordingly, the debt-to-GNP ratio is increasing at a slower pace now (12 per cent) by comparison with 2006 (14 per cent). The overall level of indebtedness could reach 248 per cent of GNP by end-2007 compared with 222 per cent at end-2006. This level of indebtedness continues to represent a vulnerability in the event of an adverse shock to the repayment capacity of borrowers, although some comfort can be taken from the persistent easing in credit growth as well as the healthy net worth position of the private sector alongside the outlook for the economy.

Residential Property Market

The main domestic development in the financial stability risk profile since the 2006 Report has been in the residential property market. According to the permanent tsb/ESRI house price index, annual increases in house prices peaked at 15.4 per cent in July and August 2006. Subsequently, there has been a slowdown that has continued into 2007 and prices are now about 3½ per cent lower on a year-to-date basis. These developments should be assessed against the gains in house prices in recent years, whereby prices rose by about 12 per cent in 2006 alone and by over 50 per cent between 2002

and 2006. The average house price is now at mid-2006 levels.

This recent moderation is welcome because it reduces some of the key concerns noted in last year's Report. The reacceleration in annual house price increases that had emerged in early-2006 was of particular concern for three reasons. First, it was not obvious that the earlier reacceleration was driven by fundamental factors and the concern was that a higher level of house prices that was not supported by fundamental factors would be more prone to a sudden correction. In particular, it was argued that continuing strong income growth and demographics in early-2006 should have been counteracted to some extent by higher interest rates and continuing high levels of housing supply. Second, the large increases in house prices combined with higher interest rates appeared to be reducing the pool of available purchasers in the market, defined as the proportion of the population that could afford to borrow to purchase an average house. This could have undermined the stability of the housing market by reducing the pool of potential purchasers and increasing pressure for a compensating liberalisation of lending standards. Third, the robust rate of house price appreciation relative to rents was reducing yields for residential investors. Unlike owner-occupiers, investors pose a risk to the stability of the market insofar as they may be more prone to exit the market, and at short notice. Nevertheless, it was argued in 2006 that investors were less likely to leave while they could still reap a return from the high rates of capital growth.

In the event, a number of developments suggest that risks to house prices have improved somewhat since last year's Report. First, house prices appear to have become more responsive to fundamental factors, with higher interest rates and current levels of supply now appearing to have a significant effect. Housing supply remains strong compared with the economy's medium-term requirements, although housing completions will be somewhat down on last year's record figure. Demand, on the other hand, has been affected by the progressive raising of short-term interest rates in recent years which has made mortgage finance more expensive, albeit partly offset by the impact of tax changes in the last Budget and growth in incomes. Second, the outlook for the size of the pool of potential purchasers in the housing market, defined as the proportion of the population able to borrow to purchase an average house, is improved due to the moderation in house price increases, notwithstanding higher interest rates. This

should reduce concerns over the stability of the housing market by maintaining the existing size of the pool of potential purchasers.

While rents continue to recover and are now increasing at a high rate, the stabilisation of house prices has reduced the attractiveness of residential investment for investors. Although, in early-2007, rental growth exceeded house price growth for the first time since April 2002, a shortfall between mortgage repayments and rental income remains for highly leveraged new investors. Investors relied heavily on capital growth for their returns in recent years, and the moderation in house price increases in an environment of higher borrowing costs has, most likely, increased the incentive for investors to delay their investments or for existing investors to realise capital gains, thereby slowing capital growth further. There are other mitigating arguments made, however, with respect to these incentives, namely, the relatively high risk-adjusted return for property for potential investors that has been apparent in recent decades, the recovery in rents and the significance of transactions costs for existing investors.

Regarding future house price developments, factors such as the level of investors' participation in the property market, the sustainability of current rates of immigration and the future direction of monetary policy are all important. However, the underlying fundamentals of the residential market continue to appear strong and the current trend in monthly price developments does not imply a sharp correction. The central scenario is, therefore, for a soft landing.

Commercial Property Market

Commercial property prices in Ireland continue to appreciate at relatively high rates. The commercial property market performed strongly across all sectors (i.e., office, retail and industrial) in 2006 and 2007, in terms of capital appreciation. The annual rate of increase in capital values in the industrial sector is approximately 11 per cent (2007Q3), with increases of 10.1 and 9 per cent, respectively, in the retail and office sectors. These are lower rates of appreciation by comparison with early-2006.

The concern is not only that capital growth rates in the commercial property market have been high but they had also diverged from the corresponding rental developments in 2006. Rents in the office and industrial sector are increasing at an annual rate of 6.5 per cent and 1.4 per cent, respectively, and by 7.9 per cent in the

retail sector (2007Q3). In 2006, rents had risen by 5.7 per cent, compared with a rate of capital appreciation of 23.1 per cent. This divergence had resulted in considerable yield compression in recent years and it is therefore notable that the divergence fell somewhat in the first half of 2007.

Yields on all types of Irish commercial property have followed a general downward trend since the mid-1990s. It may be of comfort that some international markets have also mirrored this trend of robust appreciation in capital values, indicating that global factors may explain some of these trends. Furthermore, other markets have not only experienced robust capital growth but have also experienced relatively static rental growth such that, in general, it appears that yields on European commercial property have also declined significantly.

Household Sector

The key risks arising in the household sector relate to the level of indebtedness and repayment burdens, but these risks must be assessed against the sector's healthy net worth position and low unemployment levels. Households' indebtedness continues to increase, but at a slower rate, and average repayment burdens have stabilised in the past year. Moreover, the general macroeconomic outlook appears favourable with economic growth, employment and income conditions expected to remain positive. The aggregate data suggest that the strong labour market performance looks set to continue. As economic growth slows, an upturn in the unemployment rate is expected. However, this is expected to be modest and the forecast is for the economy to remain at close to its full employment position. In addition, the household sector, in aggregate, is in a healthy net worth position.

The annual increase in mortgage lending has slowed in line with the housing market. The annual growth rate of personal-sector credit and residential mortgage lending in particular, has been declining recently. The annual growth rate of personal-sector credit in mid-2007 was 17.8 per cent, compared with 27.5 per cent in mid-2006. The annual underlying increase in residential-mortgage credit has been declining consistently over the past year and the annual increase is now approximately 16 per cent. Data from the Irish Banking Federation and PricewaterhouseCoopers also suggest that the mortgage market has been slowing somewhat in recent months.

The gross indebtedness of the household sector in Ireland, before account is taken of its financial net worth, is high by comparison with other euro area countries. As of August 2007 the stock of lending from monetary

financial institutions to domestic households was almost 78 per cent of GDP in Ireland. This puts Ireland in a group of four countries — with the Netherlands, Spain and Portugal — as the most highly indebted countries in the euro area. However, the growth rate in the Irish ratio has begun to slow, suggesting that the situation may be stabilising. Nevertheless concerns about household indebtedness remain.

The average repayment burden stabilised somewhat since the publication of last year's Report but the outlook for repayment burdens remains uncertain. The position stabilised between late-2006 and early-2007 because budgetary tax changes to mortgage interest relief and income taxes had the effect of approximately offsetting the additional costs of two $\frac{1}{4}$ percentage point interest-rate increases. However, market participants' expectations for future interest rates have been affected by market turbulence although it is still uncertain whether these changes amount to a postponement of the expected date of any future increases or a view that the top of the cycle might be lower than was expected 6 months ago. There may also be some pass-through of higher funding costs from banks to households in the form of higher borrowing rates. With the bulk of both the stock of existing, and flow of new, mortgage debt at variable interest rates, there is a concern surrounding the ability of some categories of households to continue to meet their debt repayments.

There are no firm indications so far of a significantly higher level of mortgage arrears recorded by the banking system. However, this does not preclude the possibility that repayment difficulties may be increasing for households and could be manifesting themselves in different ways, for instance, in terms of rescheduling repayments or a greater incidence of arrears on items such as utility bills.

Non-Financial Corporate Sector

Concerns relating to non-financial corporates (NFCs) have arisen largely from the high rate of growth in lending to the corporate sector. In particular, the strong increases in lending to the commercial property-related sector have been of concern. While remaining high, recent data suggest that a slowdown is occurring in the growth of lending, easing concerns somewhat. Risks associated with this high lending growth are somewhat mitigated by the continued low rate of defaults from the corporate sector and the seemingly robust state of its financial position.

The indebtedness of the non-financial corporate (NFC) sector has increased in recent years. As measured by bank debt, corporate sector indebtedness increased to 139 per cent of GDP in 2007Q1, from approximately 103 per cent in 2005. The Irish corporate sector remains highly indebted by European comparison.

Credit growth to NFCs has been increasing strongly in recent years following a period of relatively low growth in the early-2000s, but there may be indications that the rate is slowing. In 2007Q2, year-on-year credit growth was 30.8 per cent. Though this is high, it marks a slowdown on the rate in 2006Q2, when growth peaked at almost 40 per cent. The commercial property-related sector continues to be the fastest growing sector in terms of credit growth and accounts for approximately 85 per cent of all new lending to NFCs. However, there has been a marked slowdown in growth to this sector in early-2007.

Defaults in the corporate sector continue to be at a historically low level. The annualised rate of liquidations involving potentially insolvent firms was 0.22 per cent of all companies, the same as the 2006 rate, and below the long-run average of 0.37 per cent. The share of liquidations accounted for by potentially insolvent firms is forecast at approximately 26 per cent of all liquidations for 2007, significantly below the long-run average of 55.4 per cent. In 2006, this figure was 27.6 per cent. In addition, preliminary data on corporates' interest repayment burdens suggest that these have been trending downwards recently. This is complemented by preliminary indications that both the profitability and liquidity of the corporate sector improved in 2006.

Banking Sector

The turbulence in financial markets will pose challenges for the domestic banking sector, although the sector's shock absorption capacity has not been much reduced by these events. The domestic banking system reports no significant direct exposures to US subprime mortgages and very limited exposures through investments and through links with other financial companies or special purpose vehicles which themselves were negatively affected by the current market turmoil.

The health of the banking system remains robust when measured by the usual indicators and the results of in-house stress testing. The banking sector continues to grow strongly, albeit at a slower rate than heretofore. The assets of the domestic banking sector expanded by an annual rate of 19.4 per cent in the second quarter of

2007 compared with 24.5 per cent in 2006. This reduction in growth has occurred in both resident and non-resident business. The downward trend in credit growth has continued in 2007. Private-sector credit growth has declined from 30.9 per cent in February 2006 (the highest rate of credit growth since August 2000) to 20.4 per cent in September 2007. The Irish banking sector remains well capitalised with the majority of banks reporting an increase in both their overall solvency and Tier 1 capital ratios. The profitability figures reported for 2006 represent the first full year for all banks reporting under the new International Financial Reporting Standards (IFRS) accounting system. In particular, net interest margins have stabilised at a relatively low level. Asset quality remains high by historical standards. The ratings of Irish credit institutions continue to support the view that the Irish banking system remains healthy.

The domestic banking sector has minimal direct involvement in the Irish subprime residential mortgage market. The Irish market is characterised by limited mainstream banks involvement in the market, the relatively very small — albeit growing — size of the market and generally modest average loan-to-value ratios.

A number of issues in the banking sector were identified in the 2006 Report, namely, excessive credit growth, concentration in property-related business, a private-sector funding gap, falling net interest margins, and a persistent reduction in provisioning. There has been an improvement in many of these issues, where some longer-term trends have stabilised.

First, the concentration of banks' resident loan portfolios in property-related business has persisted since the publication of last year's Report. Secondly, the persistently high growth in private-sector credit has declined. Although the current rate remains high, the trend appears to be moving in the right direction. Thirdly, the funding gap of the Irish banking system, i.e., the difference between private-sector deposits and private-sector loans, has stabilised. While any funding gap represents some risk, a fuller assessment of this risk in an Irish context indicates the significant medium-term maturity element of many of these liabilities as well as the relatively wide range of funding options available to the domestic banking sector. Fourthly, preliminary analysis suggests that net interest margins may have stabilised — albeit at a low level. Margins over the longer-term have fallen significantly. This has increased banks' reliance on volume growth to support income growth and has pointed to their need to find alternative sources

of non-interest income. Margins may come under renewed pressure in the short-term because of higher market funding costs. Finally, the level of loan impairment charges (provisions) is no longer falling and appears to have stabilised, albeit at a historically low level. This trend has reflected both the benign economic environment and the introduction of new accounting standards in recent years.

A key development is the combined effect on the banking sector of low net interest margins and higher funding costs in an environment where volume growth may be lower. A combination of a slower housing market, somewhat slower economic growth and the impact of the current turbulence in financial markets on banks' willingness to supply loans could all contribute to lower volume growth in the future. The effect will be to reduce the profitability of traditional banking activities because volume growth in lending will be less likely to

continue to compensate for low margins. To some extent, the exceptionally good performance of the Irish economy over the last 15 years has placed the Irish banking sector in an unusual position by international standards. Although many Irish banks earn significant levels of non-interest income, in general, the banking sector has continued to reap the larger part of its earnings from traditional banking activities. Strong economic growth combined with a booming housing market has ensured, at least to date, that traditional banking activities have remained profitable for Irish banks. Although Irish banks share the experience of other countries with respect to the pressures on net interest margins, they have been more than able to compensate for this by rapidly expanding the scale of their on-balance sheet business. However, the current environment may make it more difficult for banks to continue to compensate for low margins with relatively high levels of volume growth.

Financial Stability Report 2007

Part 1

1. Introduction

This is the seventh annual Financial Stability Report to be published on the stability and health of the Irish financial system. Part 1 of the Report is the main commentary which provides a broad overview of developments relevant to the financial system. In particular, there is an update on various domestic and international macroeconomic developments, a description of financial developments in the household and non-financial corporate (NFC) sectors and a broad overview of the health of the domestic banking sector. The focus is primarily on identifying any emerging vulnerabilities in these areas as well as the potential events that might trigger those vulnerabilities. There are several boxes placed throughout the Report which explore topical issues in greater detail.

This commentary is complemented by a number of research articles in Part 2 of the Report, which provide further support for the conclusions reached in the main commentary.

There are two articles on the Irish property market. In recent times, there has been a large increase in capital values in the Irish commercial property market, without a corresponding large increase in rents. There has also been strong growth in commercial property-related lending to private non-financial corporates. In *A Financial Stability Analysis of the Irish Commercial Property Market*, Maria Woods examines developments in this sector and suggests some driving forces that may be underpinning the rapid pace of capital appreciation. In *The Significance of Residential Property Investors*, Allan Kearns explores the significant role that residential property investors now play in both the housing market and as borrowers from the banking system. The paper outlines the arguments on both sides of the debate as to how property investors might react to the moderation in house price inflation.

There is an article on the banking sector which highlights the international dimension of Irish banks' business. In *A Financial Stability Perspective on Irish Banks' Foreign Business*, Allan Kearns explores the scale and geographic location of Irish banks' foreign operations and outlines the possible implications for financial stability.

Historical experience shows that concentration of credit risk in asset portfolios is a risk for banks. In Ireland, year-on-year growth in lending to non-financial corporates is currently running at approximately 30 per cent, with growth particularly strong in the commercial property-related sub-sector. In *Measuring the Sectoral Distribution of Lending to Irish Non-Financial Corporates*, Rory McElligott and Rebecca Stuart use a number of measures of concentration to determine whether Irish banks' NFC loan portfolios have become more or less diversified in recent times.

In recent years, global financial market conditions have been characterised by strong growth, low inflation, innovation and increasing globalisation. These

developments have driven a search for yield among many financial institutions. Rapid growth in areas such as hedge funds, private equity and subprime lending can be seen as an extension of this phenomenon. In *Credit Institutions Operating in the Irish Market: Their Exposures to Hedge Funds, Private Equity and the Subprime Sector*, Gavin Doherty reports on a survey of credit institutions operating in the Irish market, which examines their exposures to hedge funds, private equity and subprime lending.

2. Assessment of the Irish Financial Sector

2.1 Macroeconomic Review

2.1.1 Economic Outlook

Economic growth in the Irish economy remains strong. Last year the volume of GNP increased by 6.5 per cent with a corresponding increase in GDP of 5.7 per cent (Chart 1). The latest data show that this momentum was sustained during the first half of 2007, with annual increases in GNP and GDP of 5.7 per cent and 6.7 per cent, respectively. As the year progressed, however, a gradual deceleration appears to have occurred and growth for this year as a whole is expected to be around $4\frac{3}{4}$ per cent in both GNP and GDP terms. A further easing of growth is likely in 2008. This will partly reflect a quite significant slowdown in the residential construction sector, which appears to have peaked during 2006. Private consumption growth is also expected to moderate somewhat next year as the impact of maturing Special Savings Incentive Accounts (SSIAs) lessens. As a result, GNP growth is projected to fall to around $3\frac{1}{4}$ per cent in 2008, with perhaps a slightly higher outturn of around $3\frac{1}{2}$ per cent in terms of GDP growth. Moreover, there are a number of significant downside risks to the outlook, both domestic and external, which are discussed later in this section. As economic growth slows, some upturn in the unemployment rate is expected while inflationary pressures in the economy are expected to ease. HICP inflation, which picked up during 2006 and remained quite high during 2007, is expected to come broadly into line with the euro area average during 2008.

Chart 1: Real GNP Growth

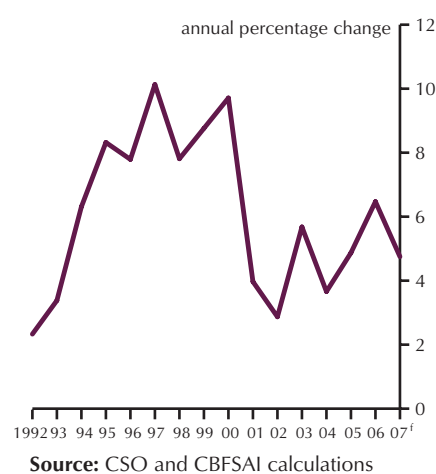
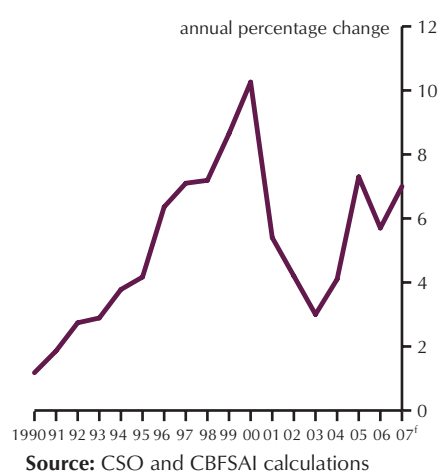


Chart 2: Real Personal Consumption Growth



In recent years, domestic demand has provided the major impetus to output growth with a somewhat more muted contribution from the external sector. Private consumption growth, for example, increased by 7.3 per cent and 5.7 per cent in 2005 and 2006, respectively, and is estimated to have increased by a further 7 per cent this year (Chart 2). The acceleration in consumer demand in 2007 reflects a combination of continued strong increases in personal disposable income and a positive boost from maturing SSIA funds. As the impact of the SSIAs weakens, together with some moderation in the rate of increase in disposable incomes, private consumption growth is projected to fall to a much lower rate of around $3\frac{3}{4}$ per cent in 2008.

Weaker growth in private investment will also contribute to a decline in domestic demand growth next year. This essentially reflects developments in the housing sector where, following several years of extremely strong activity, output growth appears to have peaked. Last year, allowing for certain statistical effects which pushed up the headline figure for housing completions, the number of new housing units built was around 88,000. Available indicators point to a figure of around 75,000 units for this year, with a further fall to around 65,000 units expected in 2008. The slowdown in residential building is likely to be only partly offset by continued growth in

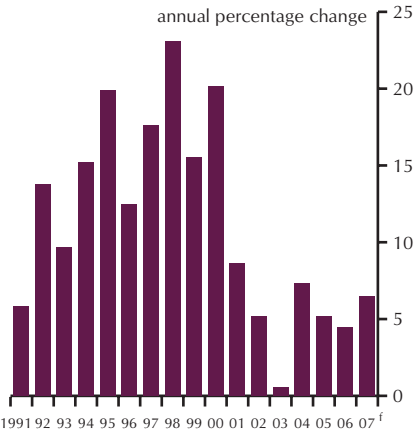
non-residential construction, including public projects, and private equipment investment. Overall, investment growth is estimated to have fallen from 3.1 per cent last year to around 1 per cent this year with a decline in investment expenditure of around $\frac{1}{2}$ per cent expected in 2008.

Export growth has strengthened this year following a subdued performance in 2006. In volume terms, the rate of increase was 7.7 per cent in the first half of 2007. This compares with increases of 4.4 per cent, 5.2 per cent and 7.3 per cent, respectively, in 2006, 2005 and 2004 (Chart 3). The recovery this year reflects in part an improvement in key sectors including information and communications technology (ICT) and chemicals. However, export growth has been relatively muted in recent years, resulting in some loss of export market share and contributing to an increased balance-of-payments deficit. Lower export growth in chemicals and ICT sectors, due to a combination of sector-specific factors and competitiveness pressures, largely explains the decline in merchandise export growth in recent years. More recently, the weakening of sterling against the euro has also weighed on the competitiveness of Irish exports. The deterioration in competitiveness reflects a number of factors, including rising prices and production costs relative to our trading partners, the strengthening of the euro exchange rate, particularly against the dollar, and weaker productivity growth (Chart 4). The decline in merchandise export growth has been partly offset by strong growth in services exports in recent years, particularly insurance, financial and business service exports. For this year as a whole, it is expected that export growth will be around $6\frac{1}{2}$ per cent with perhaps a slight deceleration to around 6 per cent in 2008. However, this will still be below the expected growth in Ireland's export markets and, accordingly, further modest declines in market share are expected in the coming years.

Strong domestic demand growth in recent years has been reflected in the continued strong performance of the labour market. Total employment increased by 4.4 per cent in 2006, with particularly strong increases in construction (up 9.7 per cent), health (up 8.2 per cent) and wholesale and retail trades (up 4.6 per cent) (Chart 5). (See Box A on Sectoral Employment Trends.) Strong employment growth was facilitated by a marked increase in the labour force of 4.5 per cent last year, due to a combination of strong inward migration and increased labour force participation, particularly among females. Both employment and labour force growth rates have moderated in 2007 and this trend is expected to continue in 2008, partly due to the expected decline in employment in the construction sector. The unemployment rate is expected to increase gradually, averaging around $4\frac{3}{4}$ per cent this year and $5\frac{1}{4}$ per cent in 2008. Nevertheless, this remains quite low in comparison with other EU countries.

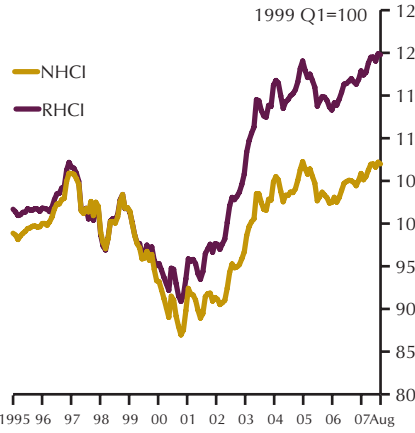
Consumer price inflation picked up during 2006, having been close to the euro area average during the preceding two years, and remained reasonably high during most of 2007. The average rate of HICP inflation last year was 2.7 per cent, which was above the corresponding average rate for the euro area of 2.2 per cent. An average rate of 2.8 per cent is expected this year. The increase in inflation has been mainly due to domestic inflationary pressures, most notably an acceleration of services sector inflation. The outlook is for HICP inflation to decline gradually to close to the euro area

Chart 3: Real Export Growth



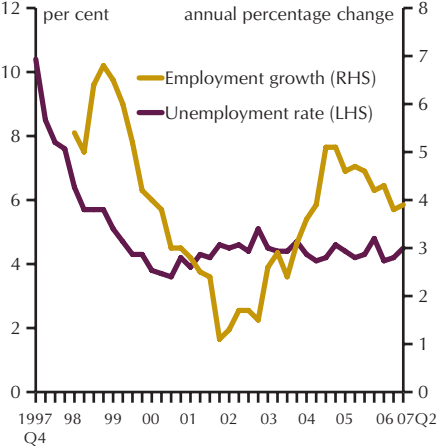
Source: CSO and CBFSAI calculations

Chart 4: Harmonised Competitiveness Indices



Source: CBFSAI
Note: NHCI is the nominal harmonised competitiveness index and the RHCI is the real harmonised competitiveness index. A rise in an indicator implies a deterioration in competitiveness while a fall represents an improvement.

Chart 5: Employment Growth and Unemployment Rate



Source: CSO

Box A: Recent Trends in Employment Growth

Chart 1: Sectoral Distribution of Employment Growth 2004 to 2006



Source: CSO

Sectoral Distribution of Employment Growth

The robustness of employment growth has been a particularly impressive aspect of the labour market's recent performance. Between 2004 and 2006, employment growth averaged 4 per cent per annum, with an increase in the numbers employed of approximately 230,000 persons over this period. Decomposing employment growth by economic sector (Chart 1) reveals that employment gains have mainly been driven by the construction and services sectors.

The contribution of the construction sector was exceptionally strong during 2004 and 2005, accounting for about 35 per cent of overall growth in both years. While the construction sector continued to dominate in terms of employment share in 2006, the reliance on this sector as a source of growth moderated somewhat. Data from the Quarterly National Household Survey (QNHS) for the second quarter of 2007 suggests that the moderation of the contribution from the construction sector has continued. In the year to the second quarter, the construction sector failed to dominate the sectoral distribution of employment gains for the first time in over three years, accounting for approximately 22 per cent of employment growth. While construction has played a key role in terms of sectoral developments, total employment growth excluding this sector was still strong at 3.4 per cent and 3.7 per cent in 2005 and 2006, respectively.

The services sector has been a consistently strong driver of employment growth over the past three years, with approximately three quarters of annual employment gains taking place in the services sector between 2004 and 2006. In terms of the composition of service sector employment growth, employment in the non-market services sector¹ increased quite markedly during 2005 and 2006, accounting for 26 per cent and 36 per cent of overall gains, respectively. The health sector alone accounted for about 18 per cent of total employment growth in 2006. During 2004 and 2005, the market services sector was the main driver of services employment growth. This situation was reversed during 2006, however, as its contribution to total employment growth was almost matched by that of the non-market services sector.

The numbers employed in the manufacturing sector declined sharply in 2003 reflecting the international slowdown in the Information and Communications Technology (ICT) sector with much of the decline in employment occurring in this sub-sector. More recently, employment in the manufacturing sector has begun to stabilise with some tentative signs of a recovery during 2006 and into 2007 also. This reflected a modest improvement in the employment performance of the ICT and chemicals sub-sectors.

The sectoral distribution of employment growth, as detailed above, reflects net changes in employment in the various sectors, and thereby takes account of both employment gains and losses. The next section looks at annual employment gains and losses in the manufacturing and internationally traded sectors using data from the Forfás Employment Survey from 1973 to 2006.

Job Gains and Losses in Ireland

Overall changes in employment are the result of many individual firm-level decisions to add or eliminate jobs in response to a wide variety of changes in the market environment. As a consequence, figures on aggregate changes in employment conceal a significant amount of turnover as jobs are simultaneously created and lost, with many of these additions and subtractions of jobs cancelling one another out in the statistics for total employment growth.

Chart 2 shows the rates of job gains, job losses and net employment growth for the firms covered by the Forfás Employment Survey from 1973 to 2006.² *Job gains* is defined as the sum of all additional jobs created by expanding establishments, which is then divided by total employment to give the rate at which jobs are created. *Job losses* is defined as the sum of all jobs subtracted at contracting units, and again is scaled by total employment to give a rate. Aggregate employment growth is the difference between the rate at which jobs are created and the rate at which jobs are lost.

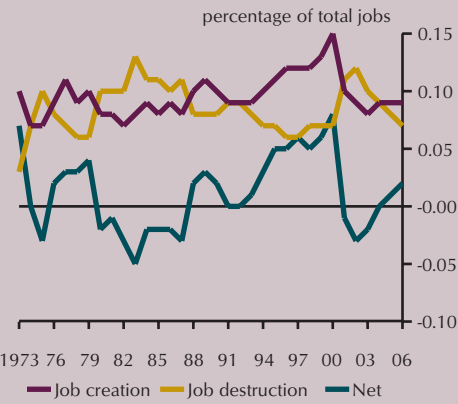
The first noteworthy finding is that jobs are created and lost simultaneously in every year. Averaging over the entire period, we find that one in ten jobs are newly created every year and one in twelve were eliminated annually. The Celtic Tiger era of strong employment growth can be easily identified as beginning in 1993 and peaking in 2000. Even during this period of overall expansion, where job creation reached rates of 12 to 15 per cent of total employment each year, the rate at which jobs were lost never fell below 6 per cent. In contrast, even in the economic stagnation of the early 1980s some firms continued to expand and job creation rates never fell below 7 per cent.

To put these figures in context, they are strikingly similar to the US, where previous research has found that manufacturing job creation averaged 9.2 per cent and job losses 11.3 per cent. In the EU, a cross-country study based on large firms found that Ireland was one of the countries that exhibited large job creation and loss rates, and had the highest net job growth rate.

That jobs are being created and lost at the same time, even in years of very high growth, partly reflects the re-allocation of employment from contracting sectors such as textiles to expanding sectors such as financial services. This is not a complete explanation, however, as even within any individual sector we also observe jobs being created and lost at all points in time. Therefore, a substantial factor underlying job flows is the reallocation that occurs within sectors from contracting firms to expanding firms. Analysis of the data indicates that sectoral re-allocation accounts for a little more than half of job turnover, with the remainder relating to within-sector re-allocation.

¹ Health, education and public administration and defence sectors. These sectors do not exactly correspond to public sector employment as they include some private sector employment.
² The survey of employment levels has been carried out on an annual basis by Forfás since 1972. It covers firms engaged in manufacturing and internationally traded services and is carried out at the establishment level.

Chart 2: Job Creation and Destruction Rates in Manufacturing and Internationally-Traded Services

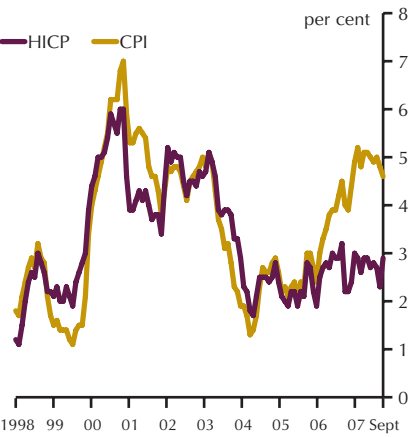


Source: Forfás Employment Survey

average during 2008, due to a number of factors including a moderation in services inflation, lower energy inflation and a weaker contribution from tobacco prices. The average increase in the CPI last year was 4 per cent, with a further increase of 4.9 per cent estimated for this year (Chart 6). CPI inflation is also expected to fall next year, with an average rate of around 3 per cent currently projected. The main difference between the CPI and HICP measures is that average mortgage interest repayments are included in the former but excluded from the latter. These have increased substantially over the past two years due primarily to the impact of higher interest rates.

The public finances had a very strong year in 2006 with an estimated General Government Surplus of 2.9 per cent of GDP. This outturn exceeded expectations, due principally to very robust tax receipts across all revenue categories. In particular, revenues were boosted considerably until recently by the buoyancy of the residential property market. However, a much smaller surplus is likely to be achieved this year, perhaps around 1 per cent of GDP, largely due to a slowdown in property-related tax receipts. Consequently, the public finances will enter 2008 with less momentum than at the start of the year.

Chart 6: Irish Inflation Rate — Selected Measures



Source: Eurostat and CSO

The ongoing slowdown in the domestic construction sector and the uncertainty prevailing in the global economy following recent financial turbulence mean that there are a number of significant risks to the macroeconomic outlook. The high share of the construction sector in economic activity is expected to fall in the coming years due to the significant decline in housing output. With export growth picking up and strong growth expected in public sector and private non-residential construction, the economy appears reasonably well-positioned to absorb the effects of this slowdown in housing activity. However, a sharper-than-expected fall in housing output would have a negative impact on both GDP growth and employment, particularly if accompanied by a shock to external demand.

A second domestic risk relates to recent competitiveness pressures. While the economy was in an extremely strong, and probably unsustainable, competitiveness position at the beginning of the current decade, the situation has subsequently deteriorated. As already noted, this has been due to a number of factors including rising prices and wages relative to our main trading partners, an appreciation of the exchange rate and lower productivity growth. While the overall competitiveness position of the economy does not appear too unfavourable judging from data on inward FDI flows, a continuation of recent trends could lead to a more severe adjustment in the longer run.

There are also risks for the Irish economy related to the uncertainties in global financial and commodity markets. In particular, the significant trade and investment links between Ireland and the US leave the Irish economy vulnerable to any sharp downturn in growth in the US. As yet, it remains difficult to assess what impact the recent financial market turbulence will have on economic activity in the US. In addition, there are continuing issues related to the value of the dollar *vis-à-vis* the euro. The dollar has weakened significantly over the past two years, putting pressure on Irish exporters to the US and raising labour costs for US multinationals based in Ireland, and the possibility of further strengthening of the euro against the US dollar as part of a correction process for international current-account imbalances cannot be ruled out. Finally, the economy remains vulnerable to the possibility of further increases in global oil prices, given strong demand conditions in developing economies and continuing uncertainties over supply.

2.1.2 Private-Sector Credit and Indebtedness

The Bank's Financial Stability Report 2006 highlighted both the level and speed at which private-sector indebtedness was being accumulated. This was seen as a cause for concern because the rapid pace of borrowing was primarily funding house and property purchases whose prices were rising at levels that were not sustainable in the long-run.

During 2007 a welcome easing has taken place in the rate of private borrowing, since Ireland's indebtedness continues to be ranked highly by international comparison. This increasing indebtedness, which has been incurred mainly for asset purchase, carries risks and leaves the banking sector more vulnerable to the risk of default in the event of a negative shock to the economy. Although a high level of indebtedness increases the vulnerability of the private sector to income and interest-rate shocks, there are also important mitigating factors such as the sector's net worth and the positive outlook for

Box B: Scenario Analysis — Mortgage Eligibility in the Residential Housing Market

In last year’s Report, scenario analysis was used to track the potential deterioration in mortgage eligibility¹ that could have occurred if the trends in interest rates and house prices at the time persisted. It was suggested then that approximately the top 50 per cent of households, ranked by household income, were eligible for a mortgage on an average new house and that the situation was likely to deteriorate if the interest-rate and house-price trends seen at the time continued. It was noted that such trends were unsustainable in the long run if a reasonably sized pool of purchasers were to maintain their access to the housing market. This Box updates the analysis presented in last year’s Report.

Interest rates have increased further since the 2006 Report, with three 25bp increases in the interim taking the ECB main refinancing rate to its current (October) level of 4 per cent. Market participants’ expectations for future interest rates have been affected by recent market turbulence, and there is now greater uncertainty regarding the future paths of interest rates. At the time of writing the Financial Stability Report 2006, house prices were increasing at an annual rate in excess of 15 per cent. Since then, however, the momentum in house prices has halted.

If these current trends² were to continue the outlook for mortgage eligibility is much different to that seen in last year’s Report, based on a continuation of trends seen at that time. Last year a continuation of double-digit house price inflation coupled with further interest-rate increases would have seen a deterioration in mortgage eligibility over time. Currently, however, house prices are declining marginally, and there is the possibility that interest rates are at or near a peak in the current cycle. If these current trends were to continue mortgage eligibility is seen to improve over time (Table 1).

Table 1: Distribution of Repayment Burdens — Scenarios

Decile	2006 annual average household disposable income €	August 2007	T+1	T+2	T+3	T+4	T+5	T+6
1	8,900	180	165	151	139	127	117	107
2	13,063	123	112	103	95	87	79	73
3	17,995	89	82	75	69	63	58	53
4	22,998	70	64	59	54	49	45	41
5	29,498	54	50	46	42	38	35	32
6	36,827	44	40	37	34	31	28	26
7	44,286	36	33	30	28	26	23	21
8	53,390	30	28	25	23	21	19	18
9	65,994	24	22	20	19	17	16	14
10	110,688	14	13	12	11	10	9	9
Average household		40	36	33	30	28	26	24

Source: CSO and CBFSAI calculations
Notes: Each group accords to a range of disposable income and numbers approximately 10 per cent of all households. Group 1 is the bottom 10 per cent of all households ranked by income, Group 2 is the next 10 per cent of households and Group 10 is the top 10 per cent of households ranked by income.
Shading indicates that households’ repayment burdens are above 40 per cent.
The black line shows the deterioration in affordability shown in last year’s Report, based on a continuation of the trends seen at that time.
Based on average national house price.

Table 1 shows a distribution of repayment burdens by income. Decile 1 represents approximately the 10 per cent of households with the lowest household disposable income and decile 10 being the top 10 per cent of households based on income. The table suggests that, as of August 2007, only those on higher incomes (above decile 6) had repayment burdens below 40 per cent and so would be eligible for a mortgage on the average house.³ If current trends were to continue, mortgage eligibility is seen to improve to the extent that those in decile 5 and above would be eligible for a mortgage on the average house by T+6.⁴ This is in contrast to last year when a continuation of trends at that time would have meant only those households in deciles 9 and 10 would have been eligible for a mortgage at T+6.

In an alternative scenario (not shown) where house prices decline in year one before growing modestly thereafter and two more (25bp) interest-rate increases occur before rates level off, eligibility is also seen to improve, however, at a slower pace than if current trends were to continue. In this case households in decile 6 and above would be eligible for a mortgage on the average house at T+6.

It should be noted that, in this Box, eligibility for a mortgage is based purely on household income and does not take into account other sources of wealth or savings. As a result the analysis presented here may understate the ability of some households to obtain a mortgage on the average house.

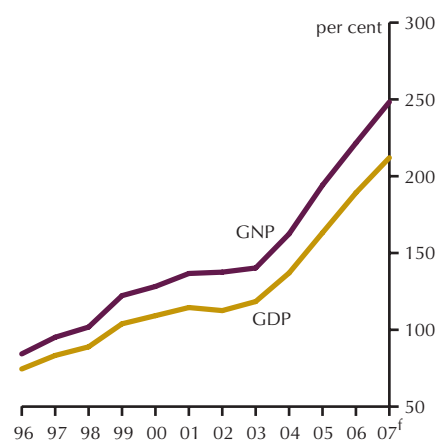
¹In the scenario analysis in this Box eligibility is based solely on the fraction of disposable income that would go on mortgage repayments. 40 per cent of disposable income is chosen as the cut off point for eligibility (i.e. it is assumed that only those households who would have a debt service ratio/mortgage repayment burden of below 40 per cent would be eligible for a mortgage). In practice debt service ratios are only one of a number of possible criteria used by mortgage lenders. Furthermore mortgage eligibility tends to be determined on a case by case basis, therefore different debt service ratios may be applied to different households.

²Trends in this Box are as of August 2007.

³This assumes an eligibility cut-off point of 40 per cent of disposable income. If a lower/higher percentage of disposable income was chosen this would tend to mean a larger/smaller proportion of households would be deemed ineligible for a mortgage.

⁴This improvement occurs under the assumption that present trends will continue for the foreseeable future, namely, the rate of house price growth will persist at approximately –1.9 per cent, household disposable incomes will grow at between 7 and 8 per cent while retail mortgage rates remain at their current level.

Chart 7: Private-Sector Credit as a % of GDP and GNP



Source: CBFSAI and CSO
Note: Includes securitisations.

the economy which, when assessed alongside the slowdown in borrowing, reduce this vulnerability somewhat. Since late-2003, the annual rate of increase in total loans to the private sector followed a general upward trend before peaking in February 2006 at 30.9 per cent¹. As 2006 progressed, however, there was a gradual easing in the pace of private-sector credit (PSC) growth. By December 2006, PSC increased year-on-year by 25.4 per cent, compared with 30.8 per cent in December 2005. This moderating trend has continued into 2007 with annual rates of increase in PSC now at their lowest level since late-2004. In September 2007 PSC increased year-on-year by 20.4 per cent, compared with 27.5 per cent in September 2006. Assuming that current trends persist, the annualised rate of credit growth in 2007 could be approximately 19 per cent.

Notwithstanding a slowing in credit growth by end-2006, Ireland's private-sector indebtedness, as proxied by the ratio of PSC to GNP, reached 222 per cent in 2006, compared with 194 per cent in 2005 (Chart 7). If current trends were to persist, the ratio could reach 248 per cent by end-2007.

Table 1 benchmarks Ireland's private-sector indebtedness against those OECD countries² for which data are available and whose indebtedness ratios are in excess of 100 per cent in 2006. By end-2006, Ireland was the second most indebted country in this sample. To provide an indication of possible ranking by end-2007, it is assumed that recent trends will persist for all countries³. In this context, it is estimated that the Irish ratio of PSC to GDP would surpass all countries within this grouping by end-2007.

¹ To obtain a more complete measure of indebtedness, this measure of private-sector credit includes the value of securitisations which are loans that have been removed from banks' loan books because they have been sold to investors. However, the loans are still held by the Irish private sector and should be included in the definition of indebtedness.

² Countries were chosen on the basis of data availability. The PSC figures do not include securitisations so the ratios for Ireland will differ from those noted earlier.

³ Annual rates of increase up to May 2007 and current forecasts of GDP in 2007 for each country were used in this estimation.

Table 1: Cross-Country Comparison of PSC/GDP

	PSC/GDP	
	End-2006 ^e	End-2007 ^f
Denmark	185	198
Ireland^a	183 (216)	202 (239)
Netherland	176	183
United Kingdom	176	188
Switzerland	176	185
Spain	167	192
Luxembourg	159	148
Portugal	157	166
Sweden	117	125
Austria	115	114
Germany	110	105
France	100	105

^a Ratios in brackets refer to PSC/GNP.

Source: IMF, Eurostat and CBFSAI calculations.

Note: Countries are ranked in descending order according to PSC/GDP ratios in 2006.

The rate of increase in indebtedness, as measured by this ratio of PSC to GNP decreased to 14 per cent in 2006 from 19.5 per cent in 2005. Should present trends persist, the rate of increase would be approximately 12 per cent at end-2007. Although, a high level of indebtedness increases the vulnerability of the private sector to income and interest-rate shocks, there are also important mitigating factors such as the sector’s overall net worth and the positive outlook for the economy which, when assessed alongside the slowdown in borrowing, reduce this vulnerability somewhat.

2.2 Property Sector Developments

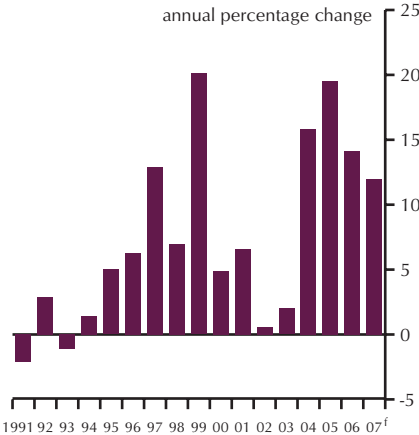
2.2.1 Residential Property

One of the main developments in the financial stability risk profile since the Financial Stability Report 2006, has been in the residential property market where the upward momentum in house prices has abated. The year-to-date changes should be assessed in the context of gains in house prices made in recent years. The moderation is welcome in that it reduces some of the key concerns noted in last year’s Report. First, house prices appear to have become more responsive to fundamental factors and the concerns about house prices moving further out of line with fundamentals have lessened. Second, the outlook for macro-affordability is much improved after the substantial earlier house price increases, notwithstanding higher interest rates. (See Box B for a fuller discussion.)

— House Price Developments

Over the course of 2006, there was a significant shift in the rate of house price appreciation according to the permanent tsb/ESRI house price index (ptsb). In the first half of 2006 national house prices increased by almost 8 per cent before slowing to almost 4 per cent over the latter part of the year. In the first nine months of 2007, house prices fell by 3.6 per cent (Chart 9). These developments should be assessed against the gains in house prices in recent years, namely, prices rose by about 12 per cent in 2006 and by over 50 per cent between 2002 and 2006. The average house price is now at mid-2006 levels. (See Box C for analysis of the economic literature on international house-price cycles.)

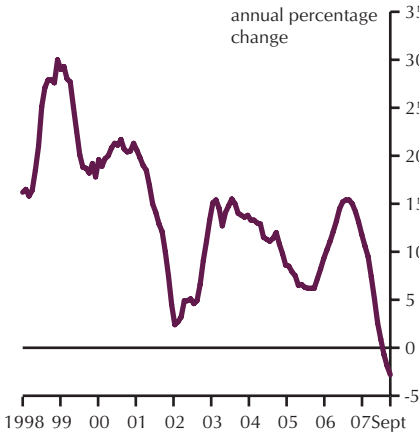
Chart 8: Annual Growth in the Ratio of Private-Sector Credit to GNP



Source: CBFSAI and CSO

Note: From 1995 onwards GNP data include Financial Intermediation Services Indirectly Measured (FISIM) figures, the data for the years prior to this do not include FISIM.

Chart 9: PTSB National House Price Index



Source: Permanent tsb/ESRI

Box C: The Economic Literature on International House-Price Cycles

This Box outlines three important qualifications to the economic literature (IMF 2003, OECD 2006, Kelly 2007) on international house-price cycles:

- these studies tend to focus on real house prices only. This Box argues that it is nominal house prices that are key from a financial stability perspective. Importantly, the results from analysing nominal house prices are very different to the results derived using real prices;
- the models used in these studies tend to be univariate and do not account for the fundamental factors that typically drive housing markets; and
- the distribution of house price declines over time indicates that the majority occurred in the different economic period prior to the 1990s, and hence drawing inferences based on past behaviour might be problematic.

The Approach: Nominal versus Real House Prices

This literature tends to examine real house prices only and this would appear to be consistent with the view that it is real returns that generally matter for investment decisions (in property and other asset markets). However, from a financial stability viewpoint, it is arguable that nominal prices matter more to both households and banks.

A key concern for households and banks is negative equity – where the nominal value of the property falls below the nominal value of the outstanding mortgage. Typically, negative equity occurs when nominal prices fall.¹ Where borrowers hold mortgages that are substantially less than the value of the property, it would require a very significant fall in nominal property prices for negative equity to arise.

To ascertain the results from using nominal prices, the methodology used by the IMF (2003)², Girouard *et al* (2006)³, and Kelly (2007)⁴ on real house price data has been applied to the corresponding nominal house price data for the same time periods. The results on nominal prices are different to those published on real prices, namely, that historically the majority of nominal house-price booms have not been followed by any fall in nominal prices.

The Methodological Approach

This economic literature tends to use a univariate approach to modelling house prices. Typically, the evolution of house prices over time is modelled as a function only of past movements in those prices. These univariate methods do not account for the fundamentals that typically determine house prices. A more encompassing approach would be to model developments in house prices as a function of developments in the factors that drive housing supply and demand such as income, interest rates and demographic factors.

The Reference Period for these Studies

In this literature, the majority of ‘booms’ and ‘busts’ in nominal and real house prices occurred prior to the 1990s. However, the incidences of ‘booms’ ending in absolute declines in real or nominal prices have fallen since the early-1990s. The reasons for the decline in the cyclicalities of both nominal and real house prices are unclear but are likely to be linked to the so called ‘Great Moderation’ where volatility in a broad range of macroeconomic series have declined over a similar time period.⁵ Accordingly, there appears to be the important qualification that past international experience may not be an accurate guide to future developments in house prices because the international macroeconomic environment is now somewhat different.

¹ Assuming a mortgage of 100 per cent or less of the property price, as is typical in Ireland.

² Kelly, M., (2007), “On the likely extent of falls in Irish house prices”, *Quarterly Economic Commentary*, ESRI, Summer, pp. 42-54.

³ Girouard, N., M. Kennedy, P. van den Noord and C. André, (2006), “Recent house price developments: The role of fundamentals”, OECD Working Paper No. 475.

⁴ IMF, (2003), “When bubbles burst”, *World Economic Outlook*, International Monetary Fund, April.

⁵ See Browne, F., D. Cronin and B. Kennedy, (2005), “The Decline in the Volatility of Output Growth: Its Causes and Consequences for Financial Stability”, *Financial Stability Report 2005*, CBFSAI, pp. 111-122.

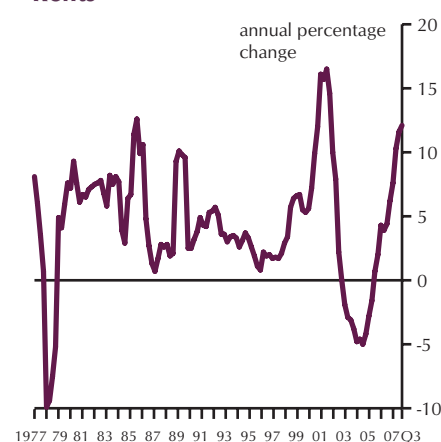
House price data from the Department of the Environment, Heritage and Local Government also show that annual rates of increase started to decelerate in late-2006. On a national basis, the annual rate of increase for new houses reached 9 per cent in 2006Q4, compared with an annual rate of 12.1 per cent in the previous quarter. The pace of increase in prices for second-hand houses eased by a relatively greater amount, registering an annual rate of increase in the order of 6.8 per cent in 2006Q4, down from 18.9 per cent in 2006Q3. The latest available data from this source indicate that the average price for new houses increased by 3.4 per cent while second-hand house prices decreased by 2.6 per cent in the second quarter of 2007.

This moderation in house prices indicates that they appear to have become more responsive to fundamental factors. Housing supply remains strong compared with the economy's medium-term requirements, although it is down on last year's record figures. In the first eight months of 2007, total completions have decreased by approximately 7 per cent relative to the same period in 2006⁴. Forward-looking indicators of supply also indicate declines in activity in the near future. New house registrations for the January to July period were down 35 per cent compared with the same period the previous year, while housing commencements, which generally lead completions by between six and nine months, were down approximately 22 per cent for the January to June period, year-on-year. Other 'soft' indicators such as planning permissions (down approximately 8 per cent in the first quarter, year-on-year) also point to the emergence of a weaker, but anticipated, trend in the house-building sector. On this basis, house completions are expected to fall this year to somewhere in the region of 75,000 units. Demand for housing may have been affected by the progressive raising of short-term interest rates in recent years, which has made mortgage finance more expensive. Since the publication of the last Report, however, affordability pressures may have moderated slightly as a result of easing in the upward momentum in house prices and amendments introduced in Budget 2007. At the current juncture, market expectations for future interest rates have been affected by market turbulence. Generally these changes amount to a postponement of the expected date of any future increases or a view that the top of the cycle might be lower than was expected six months ago.

— *Risks to the Outlook: the Buy-to-Let Segment*

Rents continue to recover and are increasing at a high rate, nevertheless, the risk arising from low rental yields for residential investors appears to have increased since the 2006 Report. Investors in the residential sector have relied heavily on capital appreciation for their returns in recent years. The slight fall in house prices in an environment of higher borrowing costs would appear to have increased the incentive for prospective investors to delay investing or for existing investors to realise their capital gains, thereby slowing capital growth further. Investors have accounted for a significant share of demand in the Irish residential property market in recent years, although there are some indications that the share of purchases by investors will be lower in 2007. Since 2004, the buy-to-let sector has comprised a growing share of outstanding residential mortgages. As at June 2007, 26.1 per cent of outstanding mortgages could be attributed to investors. The corresponding

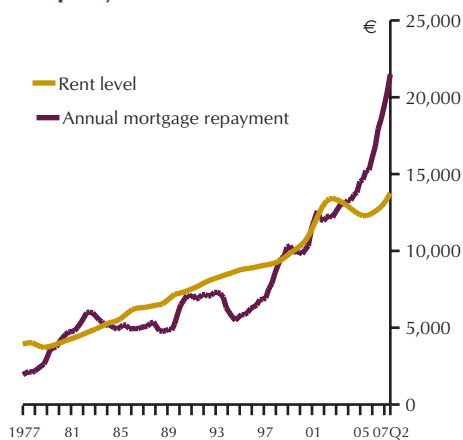
Chart 10: Residential Property Rents



Source: CSO

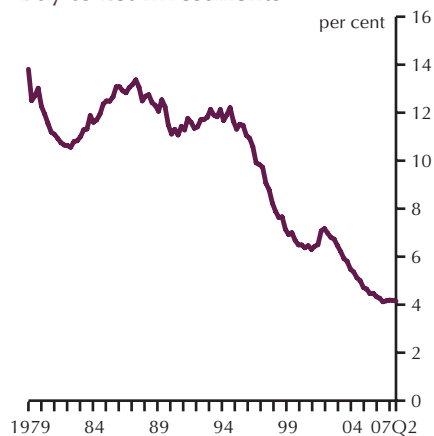
⁴ Completions figures for 2006 are adjusted for a backlog in ESB connections encountered in 2005.

Chart 11: Rents and Mortgage Repayments for an Average Buy-to-Let Property



Source: CBFSAI

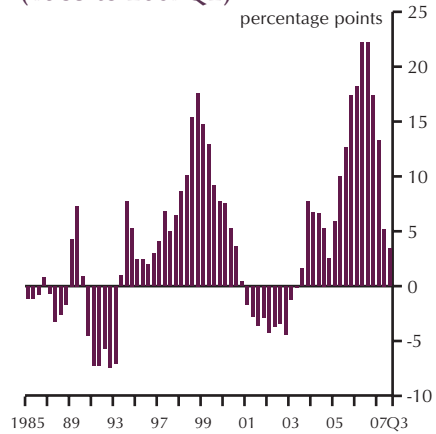
Chart 12: Irish Rental Yields — Buy-to-Let Investments



Source: DoEHLG, CSO and CBFSAI calculations

Note: Rents as a percentage of house prices.

Chart 13: Differential Between Annual Growth in Capital Values and Annual Growth in Rents (1985 to 2007Q2)



Source: Jones Lang LaSalle and CBFSAI calculations

Notes: Data are bi-annual from 1985 through 1996 and quarterly from 1997 to date.

figure for December 2003 was 16.7 per cent. However, there is uncertainty surrounding the reaction of this market segment to the possibility of a marked slowdown or a fall in house prices. The recent pattern of house prices may have particular relevance for new investors who may already be facing a shortfall in terms of covering their mortgage obligations with rental income.

However, more recently, positive developments in regard to rents may alleviate some pressure on new investors. The recovery in rents has gathered momentum with annual increases reaching 12.1 per cent in August 2007 according to the CSO's *Private Rental Index* (Chart 10). Only three years earlier in August 2004, rents had been declining by 4.2 per cent. An alternative source of rental data (Daft.ie) confirms this recovery, indicating national rental increases of 9 per cent in July 2007 relative to July 2006. This annual rate of increase for July, however, represents a slight decline over corresponding figures for May and June (11.3 per cent and 16.8 per cent, respectively).

Although in early-2007 rental increases exceeded house price increases for the first time since April 2002, a shortfall between mortgage repayments and rental income remains for new investors. As at 2007Q2, those investing in new houses face an estimated shortfall between their annual mortgage repayments and annual rental income of approximately 36 per cent (Chart 11). This represents a significant deterioration since 2005Q1, when the estimated shortfall was less than half this amount (16 per cent). The estimated shortfall is more pronounced for those investing in second-hand houses (43 per cent in 2007Q2).

The levelling off and, more recently, falls in house prices, combined with the recent pick-up in rental growth, means that the yield on residential property increased marginally to 4.15 per cent in the second quarter of 2007 (Chart 12). However, this is a recovery from historical lows when yields declined to 4.12 per cent in 2006Q2. To put these figures in perspective, in 1997Q1 the yield on residential property was 9.73 per cent.

There are other arguments made, however, with respect to the relatively high risk-adjusted return on property for potential investors, the recovery in rents and the significance of transaction costs for existing investors that may reduce investors' incentives to exit the current market. Using a longer-term analysis of the risk-adjusted returns to property suggests that, despite facing slower capital growth and low yields, investors may not exit the current market in significant numbers. The Sharpe ratio, which normalises the return on an asset for a given measure of risk, suggests that residential property (including or excluding rental income) offered relatively better risk-adjusted returns relative to equities for the period 1989 to 2007Q2 (Table 2).

Table 2: Asset Portfolio Performance (1989 to 2007Q2)

	Equities	Equities (incl. dividends)	Residential housing	Residential housing (incl. rental income)	Government 10-year bonds
Average annual return (%)	14.48	17.25	9.86	18.60	6.34
Variance	506.37	528.78	46.62	59.59	4.89
Sharpe ratio	0.016	0.021	0.076	0.206	—

— The Outlook for House Prices

Regarding future house price developments, factors that will have an influence on the future direction of house prices are investors' participation in the property market, the sustainability of current rates of immigration and the future direction of monetary policy. The underlying fundamentals of the residential market continue to appear strong, as evidenced by rent increases. The central scenario is, therefore, for a soft, rather than a hard, landing.

2.2.2 Commercial Property

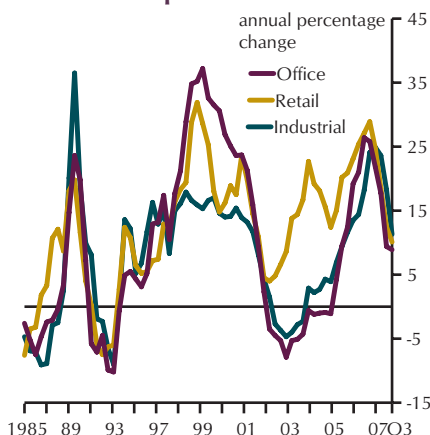
The Irish commercial property market performed strongly across all sectors (i.e., office, retail and industrial) in 2006 in terms of capital appreciation. Based on data from Jones Lang LaSalle, the annual rate of increase in capital values has persistently outpaced the increase in rents since late-2003 (Chart 13). This divergence has resulted in considerable yield compression in recent years. According to the SCS/IPD Ireland Index, the equivalent yield on all commercial property was 4.10 per cent in 2006Q4, compared with 8.41 per cent in 1995Q1. Since the mid-1990s, yields on all types of Irish commercial property have followed a general downward trend. Many international markets have also mirrored this trend of robust appreciation in capital values, indicating that some global factors can explain these trends. Furthermore, other markets have not only experienced robust capital growth but have also experienced relatively static rental growth such that, in general, it appears that yields on European commercial property have declined significantly.

More recently, the pace of capital appreciation has begun to ease, albeit still maintaining a brisk pace across all three commercial property sectors (i.e., office, retail and industrial). Although, the annual rate of capital appreciation continues to outpace rental growth, the extent of this divergence has declined in absolute terms. However, nominal income yields remain at low levels. Capital values on total commercial property increased year-on-year by 9.5 per cent in 2007Q3, compared with 26.7 per cent in 2006Q3. Rental values, by contrast, registered an annual rate of increase of 6.1 per cent in 2007Q3 (the equivalent figure in 2006Q3 was 4.5 per cent).

A disaggregated analysis of the commercial property sector indicates that the industrial sector has replaced the retail sector as the best performing commercial property sector since 2006Q4 (Chart 14). The annual rate of increase in capital values in the industrial sector was 11.3 per cent, while the equivalent rate for the retail sector was 10.1 per cent in 2007Q3 (the corresponding figures in 2006Q3 were 24.1 per cent and 28.9 per cent, respectively). Capital values in the office sector increased year-on-year by 8.9 per cent in 2007Q3 compared with an annual rate of 25.8 per cent in 2006Q3. Relative to 2007Q2, there has been a weakening in the annual rates of increase in capital values across all three sectors in 2007Q3.

The annual increase in rental values has not kept pace with capital appreciation in any of the three commercial property sectors. Although the modest recovery in rental values in the office sector has continued into the third quarter of 2007, annual increases in rental values on both the industrial and retail property eased relative to 2007Q2. Rental values in the office and industrial sectors increased at an annual rate of 6.5 per cent and 1.4 per cent, respectively (Chart 15). In 2006Q3, the corresponding rates were 2.9 per cent

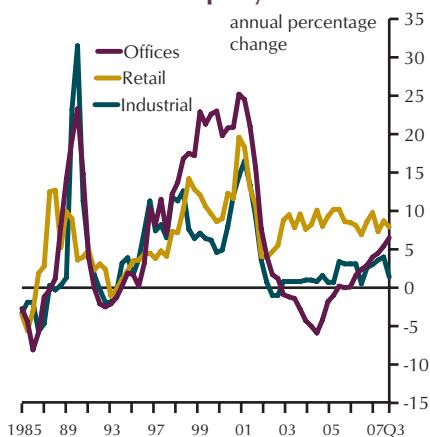
Chart 14: Capital Values Growth



Source: Jones Lang LaSalle

Note: Data from 1985 to 1996 are bi-annual and data from 1997 to date are quarterly.

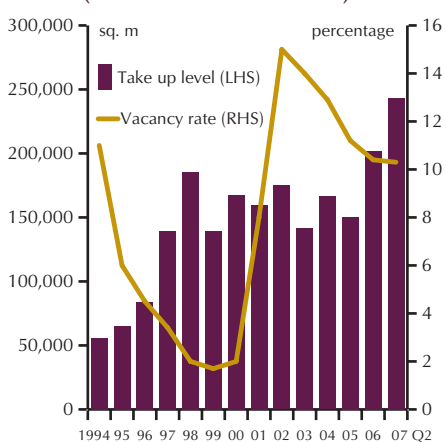
Chart 15: Growth in Rents on Commercial Property



Source: Jones Lang LaSalle

Note: Data from 1985 to 1996 are bi-annual and data from 1997 to date are quarterly.

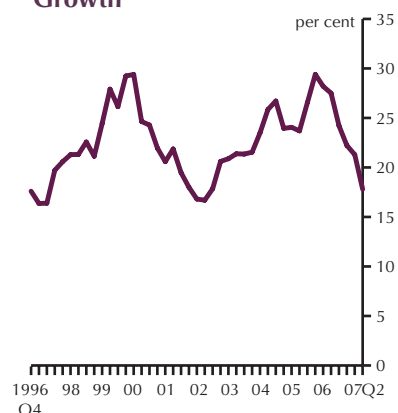
Chart 16: Vacancy Rates (Dublin Office Market)



Source: CB Richard Ellis Gunne and CBFSAI calculations

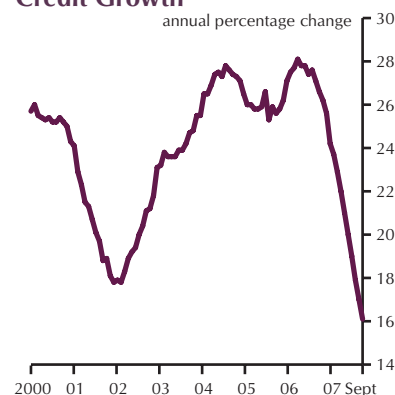
Note: Take-up rates are forecast for 2007.

Chart 17: Personal-Sector Credit Growth



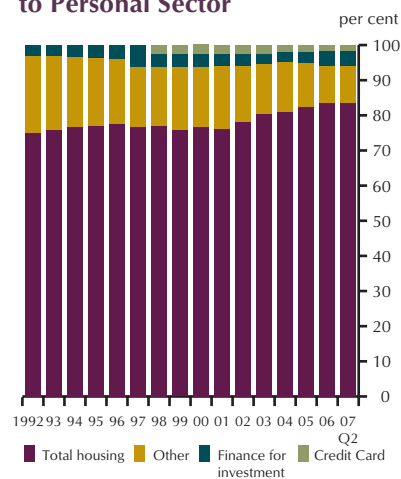
Source: CBFSAI
Note: Growth rates have been adjusted for securitisation of residential mortgages. Data between July 2004 and June 2005 have been adjusted for a transfer of some €2 billion.

Chart 18: Residential Mortgage Credit Growth



Source: CBFSAI
Note: The growth rate has been adjusted for securitised mortgages and is the underlying adjusted rate.

Chart 19: Distribution of Advances to Personal Sector



Source: CBFSAI
Note: Credit card is in 'Other' category prior to 1998.

and 2.6 per cent. Regarding the retail sector, rental values rose year-on-year by 7.9 per cent, compared with 8.6 per cent in 2006Q3.

In the second quarter of 2007, the vacancy rate in the Dublin office market stood at 10.3 per cent, down from 11.1 per cent in 2006Q2 (Chart 16). Despite declining from a peak of 15 per cent in 2002, the current vacancy rate remains above the historical average of 7.9 per cent. Vacancy rates, however, vary greatly across the capital. The vacancy rate on office property in the Dublin 2 and 4 areas was 4.2 per cent in 2007Q2. By comparison with the first half of 2006, take-up levels increased by 55.6 per cent in the first two quarters of 2007, indicating that market sentiment remains positive in the Dublin office sector.

2.3 Household Sector

2.3.1 Household Indebtedness

— Personal-Sector Credit

Personal-sector credit is the largest single component of private-sector credit, accounting for approximately 41 per cent. The annual increase in personal-sector credit has been declining somewhat in recent quarters; as of 2007Q2, this was 17.8 per cent⁵ compared with 27.5 per cent in 2006Q2 (Chart 17). An interpretation of this decline is complicated, however, by the fact that reclassifications and revisions have occurred over this time period which have the effect of lowering the rate of increase.

While it is not possible to strip out the effects of these reclassifications on overall personal-sector credit, it has been possible to calculate an underlying residential mortgage-credit series. This concept of residential mortgage credit increases has been declining consistently over the past year, in line with the slowing housing market. As of September 2007, the increase was 16.1 per cent (Chart 18), having peaked in March of last year at 28.1 per cent. Data from the Irish Banking Federation (IBF) and Pricewaterhouse Coopers (PwC) also show that the mortgage market has been slowing. The total value of mortgages issued in 2007Q2 (€8,733 million) was 13.8 per cent below the value issued in the corresponding quarter of 2006. In terms of loan volumes, all market segments showed a decline in comparison with 2006Q1. The re-mortgage category showed the smallest decline over this time (approximately 9 per cent).

The average annual rate of increase in lending to domestic households in Ireland over the first eight months of 2007 was 13.7 per cent (Table 3). This is the fifth highest average rate of increase among the euro area countries and almost double the rate in the euro area as a whole.

The sectoral distribution of advances⁶ to the Irish personal sector has remained largely unchanged over the last year to 18 months, with the share of housing finance in the region of 83 to 84 per cent (Chart 19). In the earlier years of the current decade, the share of housing finance had increased from 75 per cent in the early-2000s to a peak of 84 per cent in 2006Q1. The other

⁵ Growth rates have been adjusted for securitisation of Irish residential mortgages.

⁶ Sectoral distribution figures have not been adjusted for securitisation of Irish residential mortgages.

components of personal-sector credit – finance for investment, credit-card debt and other advances – account for relatively small shares which have also been fairly stable in recent times, at approximately 4, 2 and 11 per cent of personal-sector credit, respectively.

Table 3: Average Annual Growth Rate in Monetary Financial Institution (MFI) Lending to Domestic Households – First Eight Months of 2007

Country	Growth rate
Slovenia	24.8
Greece	22.5
Luxembourg	20.8
Spain	17.9
Ireland	13.7
Finland	12.9
France	10.9
Portugal	10.6
Italy	8.9
Belgium	8.6
Euro area	7.3
Austria	5.4
Netherlands	3.9
Germany	–1.0

Source: ECB and CBFSAI calculations

A breakdown of housing finance shows that mortgages on principal dwelling houses account for almost three-quarters of total housing finance (Chart 20). However, this share has been declining since 2003Q4 when it accounted for 81 per cent. Mortgages for buy-to-let properties, on the other hand, have been increasing as a share of housing finance, now accounting for a little over one-quarter of housing finance compared with less than 17 per cent in 2003Q4. The shares accounted for by holiday homes/second houses and other housing finance are small and have been stable over this time.

— *Indebtedness*

At end-2006, personal-sector credit was 164 per cent of disposable income⁷ (Chart 21) and the proportionate increase in the ratio over the year was 14 per cent. The slowdown in personal-sector credit growth suggests that household-sector indebtedness should increase at a slower rate in 2007. If the current trend in personal-sector credit continues, the ratio is expected to increase by approximately 6 per cent in 2007, resulting in a personal-sector credit-to-disposable income ratio in the region of 175 per cent by end-2007. In an international context, Ireland is among a group of four countries – the Netherlands, Spain and Portugal – with the highest household debt ratios in the euro area. As of August 2007, MFI lending to domestic households was 77.8 per cent of GDP in Ireland (Chart 22). This places Ireland as the third most indebted country after the Netherlands (80 per cent) and Spain (78 per cent).

⁷ The level of Irish household indebtedness has been adjusted to take account of mortgage securitisation.

Chart 20: Components of Housing Finance

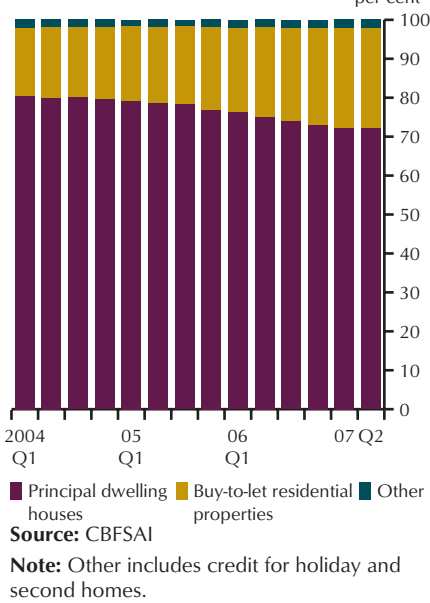


Chart 21: Personal-Sector Credit as a % of Disposable Income

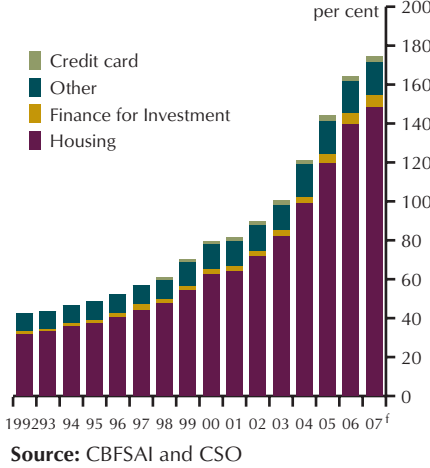


Chart 22: Household Debt-to-GDP Ratio – August 2007

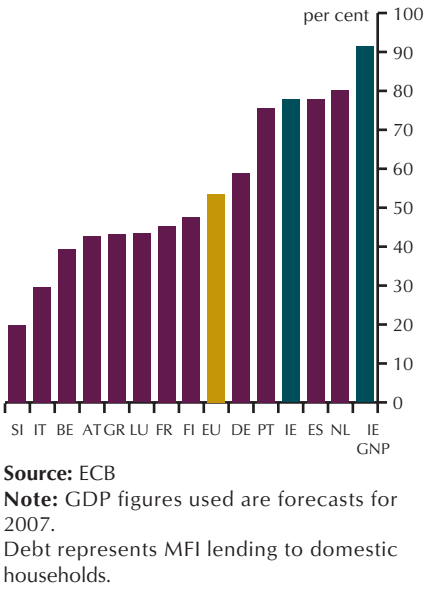
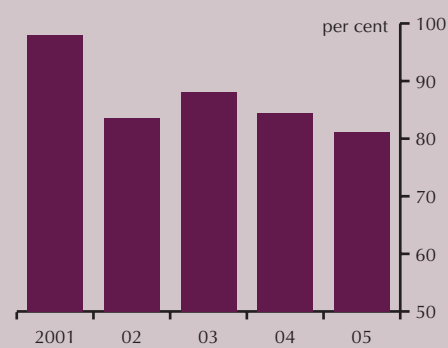
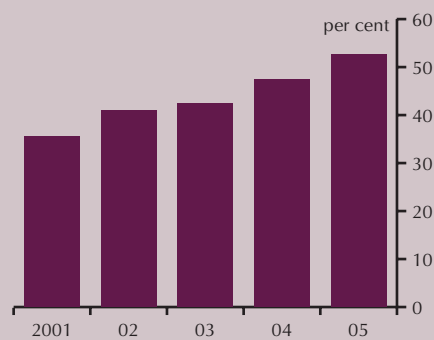


Chart 1: Household Sector Net Financial Assets as % of GDP



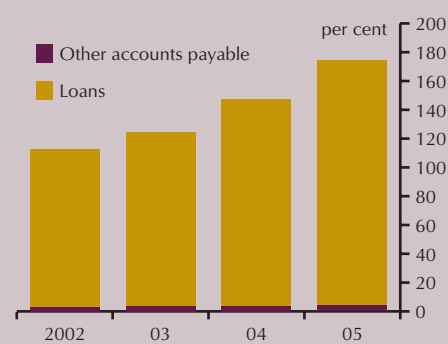
Source: CSO and CBFSAI calculations

Chart 2: Financial Liabilities as a % of Financial Assets – Household Sector



Source: CSO and CBFSAI calculations

Chart 3: Household Sector Debt as % of Disposable Income



Source: CSO and CBFSAI calculations

Note: Debt is total financial liabilities.

Box D: Financial Position of the Household Sector

The analysis of the household sector in previous years' Financial Stability Reports has predominantly focused on the liabilities of the household sector. This has been due to a lack of data on household sector assets and in particular the lack of a household sector balance sheet. This Box attempts to provide a more rounded picture of the financial position of the household sector by using household sector financial balance sheet data recently published by the CSO.

In April 2007 the CSO published Institutional Sector Accounts (Financial and Non-Financial) for Ireland for the first time. The accounts analyse the main macroeconomic variables and provide a financial balance sheet for each economic sector — households, government, financial corporations, non-financial corporations and rest of world. This Box uses the data, contained in these accounts, relevant to the household sector to provide a picture of the financial position of the sector.

The financial balance sheet¹ of the household sector shows that, in aggregate, it is in a strong financial position. First, financial liabilities amount to little over 50 per cent of financial assets, i.e., the household sector has a substantial positive net financial asset position. As of 2005, net financial assets amounted to approximately €130 billion — equivalent to approximately 80 per cent of GDP (Chart 1). Secondly, the household savings rate has averaged almost 7 per cent over the years 2002 to 2006, indicating that the sector has a stock of savings in place if required.

While in aggregate the financial position, as outlined above, shows the household sector to be in a healthy financial situation, an increase in the levels of financial liabilities and debt held is noticeable in recent years. Financial liabilities have increased by 130 per cent since 2001 and in 2005 amounted to €145 billion. This increase in financial liabilities is due to the substantial increase in the value of loans, which account for approximately 98 per cent of the sector's financial liabilities, held by the sector over this time. Loans more than doubled between 2001 and 2005, going from approximately €61 billion to €142 billion. The growth in financial assets over this period — 55 per cent — has failed to keep pace with growth in financial liabilities. The effects of these developments is the decrease in the sector's net financial assets as a percentage of GDP (Chart 1) and the increase in financial liabilities as a percentage of total financial-assets, in recent years (Chart 2).

The increase in the level of debt accumulated by the household sector in recent years is evident in the increase in the household debt-to-disposable income ratio over this period. In 2005, the household debt-to-disposable income ratio had risen to in excess of 170 per cent (Chart 3), compared to approximately 143 per cent in 2004 and 110 per cent in 2001.

The Institutional Sector Accounts only provide a financial balance sheet for the household sector; a non-financial balance sheet is not contained in the accounts. However, the value of dwellings held by households² can be added to the households' net financial asset position to obtain a rough proxy for the sector's net worth. If this is done, it reinforces the picture that the household sector, in aggregate, appears to have a substantial positive net position — in excess of 400 per cent of GDP in 2005 (Chart 4). Furthermore, the increase in the value of housing more than offsets any weakening in the net financial position of the household sector, resulting in an improvement in the overall net worth position of the household sector since 2002 — total net assets as a percentage of GDP increasing from 344 per cent in 2002 to 418 per cent in 2005. It should be noted, however, that the value of dwellings are a relatively illiquid asset that would not usually be available immediately to pay down households' indebtedness.

The data above show that the level of debt held by the household sector has increased in recent years, suggesting that the household sector may be more vulnerable to a negative shock than was previously the case. However, despite the fact that some household sector assets are likely to be illiquid and so may not be available to households immediately, in aggregate, the household sector appears to be in a healthy position, with a positive net position.³

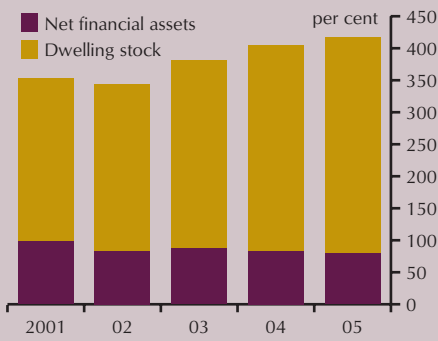
It should be noted that aggregate level data is used in this box and so it does not show that within the household sector the financial position of individual households may vary quite considerably.

¹The financial balance sheet presents the financial assets and liabilities of the household sector. Financial assets and liabilities are made up of currency and deposits, securities other than shares, loans, shares and other equity, insurance technical reserves and other accounts. A non-financial balance sheet is not part of the accounts. This means that the value of housing owned by the household sector, which is the main non-financial asset of the household sector, is not included in the accounts.

²The value of dwellings (housing assets) is sourced from Kelly, J., M. Cussen and G. Phelan, (2007), "The Net Worth of Irish Households – An Update", *Quarterly Bulletin*, CBFSAI, No. 3, pp. 109-122.

³For a more detailed analysis of the financial position of the household sector and the data contained in the Institutional Sector Accounts see Kelly, J., M. Cussen and G. Phelan, (2007), "The Net Worth of Irish Households – An Update", *Quarterly Bulletin*, CBFSAI, No. 3, pp. 109-122.

Chart 4 : Household Sector Total Net Assets as a % of GDP



Source: CSO and CBFSAI

Note: Total net assets are made up of household net financial assets and an estimate of the value of dwellings held by households. It can be thought of as a proxy for household "net worth".

— Asset Side of the Balance Sheet

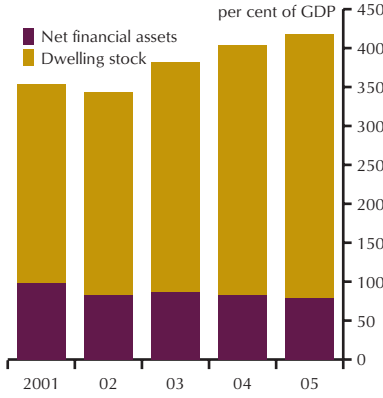
The gross indebtedness data do not reflect the overall financial position of the household sector because no adjustment has been made for the significant value of households' assets. The data from institutional sector accounts – essentially the household sector's financial balance sheet – indicate that the net financial assets of the household sector amounted to approximately €130 billion in 2005. This excludes the gross value of dwellings which can be added to the households' net financial assets to obtain a proxy for the sector's net worth. When the value of dwellings is included, the data suggest that the household sector enjoys a healthy net worth position (418 per cent of GDP) (Chart 23). However, there are two important caveats to these aggregate figures. First, it is considered unlikely that heavily indebted households are the same households that have significant net worth. Second, the definition of net worth used above is a broad measure and includes possibly illiquid assets such as the value of dwellings. (Box D provides a more in-depth look at the financial position of the household sector.)

A breakdown of the household sector's financial balance sheet shows that loans make up practically all of its financial liabilities – approximately 98 per cent (Chart 24). On the asset side, 'insurance technical reserves'⁸ are the main component (41 per cent) with currency and deposits (30 per cent) and shares and other equity (27 per cent) also accounting for significant portions.

— Affordability

Since December 2005, the ECB has raised the main refinancing rate from 2 per cent to 4 per cent. This has occurred through eight 25 basis point increases. As the majority of household debt is held at variable rates, most mortgaged households are likely to have experienced increases in their debt repayments over this time. In 2007Q2, 76.4 per cent of outstanding mortgage credit was held at variable rates (Charts 25 and 26). This share peaked in late-2005 (85.8 per cent) and has been declining since. In the intervening period

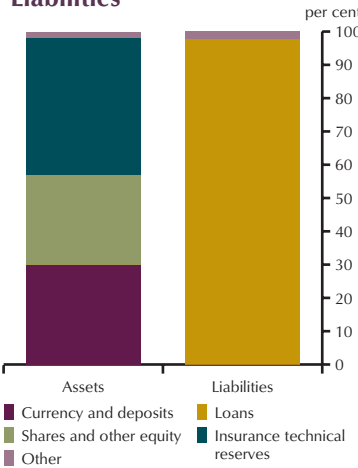
Chart 23: Household Net Worth



Source: CSO and CBFSAI calculations

Note: The value of the dwelling stock (housing assets) has been sourced from Kelly, Cussen & Phelan, CBFSAI Quarterly Bulletin 3, 2007.

Chart 24: Breakdown of Household Sector Financial Assets and Liabilities



Source: CSO

Note: Data is for the year 2005. Other includes gold and SDRs, securities other than shares and other accounts receivable.

⁸ 'Insurance technical reserves' covers the net equity of households in life insurance and pension fund reserves, together with prepayments of insurance premiums and reserves for outstanding claims.

Chart 25: Fixed and Variable Rate Mortgages (Stock)

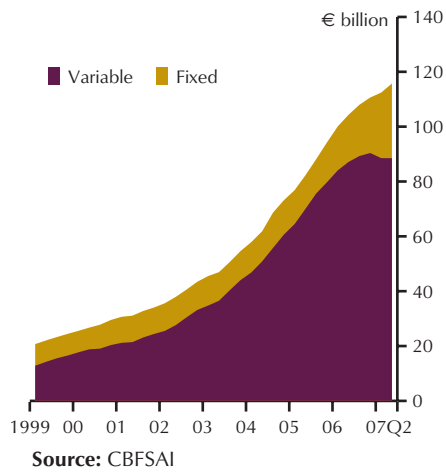


Chart 26: Fixed and Variable Rate Mortgages (New Business)

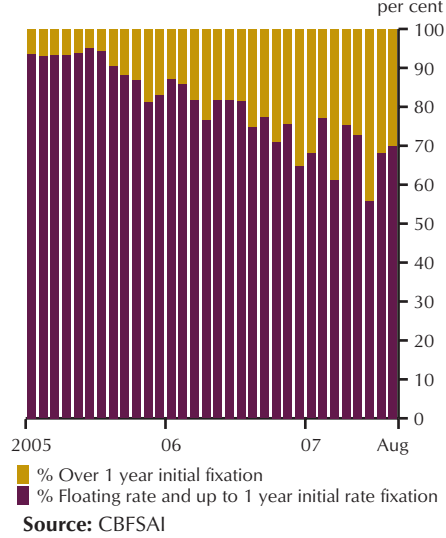
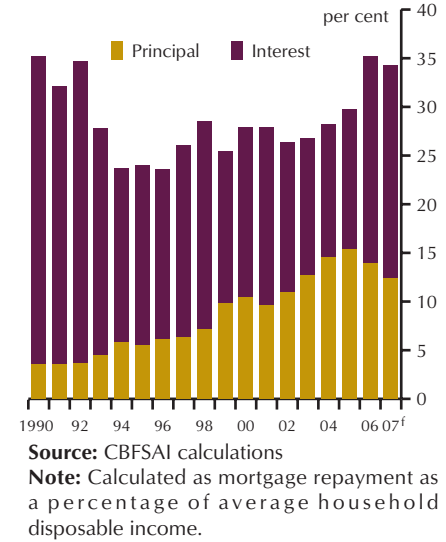


Chart 27: Estimated Mortgage Repayment Burden



the slight move away from variable rate mortgages and towards fixed-rate mortgages is likely to have been influenced by the changing interest-rate environment. The greater part of fixed-rate mortgages are held at shorter terms. Over 70 per cent of outstanding fixed-rate mortgage credit is fixed for between 1 and 3 years.

Mortgage repayment burdens have generally increased in recent years (Chart 27); initially, driven by the high rate of houses price inflation, and since late-2005, driven by interest-rate increases. (Box E in this Report reviews in more detail some of the developments in mortgage repayment burdens over the past twelve months.) Robust income growth as well as changes introduced in the last Budget regarding tax bands, tax credits and mortgage interest relief, have worked to reduce repayment burdens somewhat since the last Report. The moderation in house price developments has also eased some of the upward pressure on burdens. Market participants’ expectations of future interest rates have been affected by market turbulence and these seem to amount to a postponement of the expected date of any future increases or a view that the top of the cycle might be lower than was expected six months ago (Chart 28).

While interest-rate increases will have impacted on variable-rate mortgages and on the rates offered on new mortgages, the impact on repayments will tend to vary across mortgages. Other things being equal, a rise in interest rates will increase the repayment on a newer mortgage by more than the repayment on an older mortgage. This is illustrated in Table 4 where it can be seen that the effect of the interest-rate increase on the mortgage repayment declines successively each year. Thus it is those households with newer mortgages that are likely to have been affected most by the interest-rate increases since late-2005. Since the majority of mortgage debt held is at variable rates and since over a quarter of households where the dwelling is owner occupied with a loan or mortgage have been built since 2001⁹, there is likely to be a proportion of households who have seen large increases in their mortgage repayments. It should be noted however that not all households hold mortgage debt.

Table 4: Effect of Interest-Rate Increase on Mortgage Repayments

Year ^a	Increase in annual repayment ^b
2007 (June)	€470
2006	€465
2005	€395
2004	€345
2003	€300
2000	€288
1998	€115
1996	€65

^a Refers to the year when mortgage was taken out.
^b Refers to the increase in the annual mortgage repayment due to a 25 basis point increase in mortgage rates.
Note: The increase in mortgage repayments is for illustrative purposes. The repayments are based on the average national house price as of December in each year. A 90 per cent loan-to-value ratio and a mortgage term of 20 years have been assumed.

⁹ CSO Census 2006.

Box E: Households’ Mortgage Repayment Burdens

This Box discusses some of the factors that have impacted on mortgage affordability recently and looks at what the various mortgage affordability indicators (repayment burdens) are saying about the trends in affordability. Mortgage repayment burdens are a useful indicator of how households are coping with repayments. The increases in house prices, average mortgage values and household indebtedness that have occurred over a number of years have directed attention to the issue of mortgage affordability. More recently, the pick-up in interest rates over the last 2 years, albeit from a very low level, has further focussed attention on the issue. Several institutions, including Bank of Ireland, EBS/DKM and the Department of the Environment, Heritage and Local Government (DoEHLG) as well as the CBFSAI, now calculate and publish various mortgage repayment burdens.

Mortgage affordability depends on several factors. These include economic factors such as house prices, interest rates and income and contractual factors like the specified mortgage term. Budgetary or governmental factors including tax rates, tax bands, tax credits and mortgage interest relief can also impact on mortgage affordability through their effects on households’ disposable income.

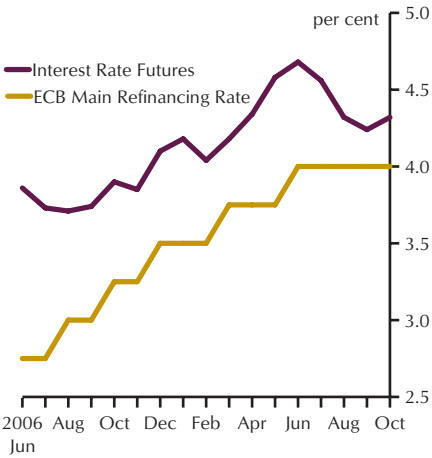
The effect of changes in interest rates and house prices on repayment burdens is relatively straightforward. Other things being unchanged, an **increase/decrease in house prices** or **interest rates** tends to increase/decrease the repayment burden. **Changes in income** work in the opposite way with an increase in income tending to reduce the burden and *vice versa*. **The mortgage term** impacts on the initial repayment burden as it determines the timeframe over which the mortgage principal is repaid. Increasing the mortgage term, then, has the effect of reducing the initial burden as the principal repayments are spread over a longer time period. **Budget factors** impact on affordability through income. Other things unchanged, an increase in tax bands or credits will increase household disposable income. An increase in mortgage interest relief works in a similar way.

In terms of the developments over the last year or so, interest rates have picked-up further since the Financial Stability Report 2006, continuing the upward trend which began in December 2005. The ECB has increased the main refinancing rate by 200bps – in eight 25bps increases – since December 2005. Each 25bps increase adds approximately €35 to each monthly repayment on a mortgage of €250,000¹. In terms of house prices, there has been a significant shift in the rate of house price appreciation. House prices have been declining slightly since mid-2006; over the year to date the fall is approximately 3½ per cent. The slowing housing market has tended to improve affordability by reducing repayments.

The other factors mentioned – income, mortgage terms and budget changes – have also developed in a way that, other things being unchanged, would have improved affordability. In recent years, incomes have grown as the economy has performed well. Growth in household disposable income averaged in the region of 9 per cent per annum between 2000 and 2005, while the average industrial wage increased by over 5 per cent in 2006. Average mortgage terms today are somewhat longer than in the past as, over recent years, new mortgage holders have attempted to reduce the initial repayment burden by spreading their principal repayments over a longer term. Mortgage terms of 30, 35 or even 40 years are no longer a rarity. Measures introduced in Budget 2007 increased tax credits and bands and doubled mortgage interest relief. These changes benefited mortgage holders as they boosted disposable incomes.

The developments in the factors that effect mortgage affordability are shown in a EBS/DKM affordability index. EBS/DKM put the repayment burden for national first-time buyers² at 21.6 per cent of disposable income as of December 2005 (Table 1), while the repayment burden faced by a Dublin first-time buyer was 25.7 per cent. These repayment burdens increased to 26.4 per cent and 32.5 per cent, respectively, by December 2006, as positive house price growth and interest-rate increases put

Chart 28: Interest Rate Futures (3-month contract)



Source: Bloomberg

Note: Data are for the evolution of market expectations for market interest rates in September 2008, as of end-October 2007.

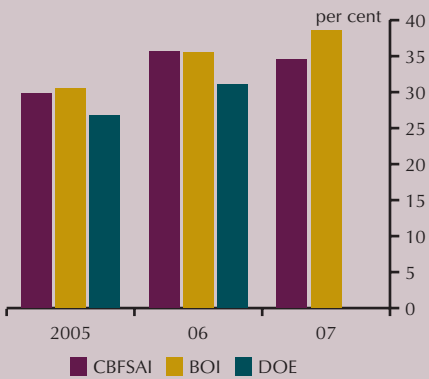
upward pressure on repayments. The impact of the budget changes is shown by the fall in both the EBS/DKM national and Dublin indices in January 2007, to 24.4 per cent and 29.5 per cent, respectively. Since then, the indices have been relatively stable with the month-on-month declines in house prices helping to offset the interest rate increases of March and June and thereby helping to maintain affordability.

Table 1: EBS/DKM Housing Affordability Trends (September 2007)

	2005	2006		2007		
	December	June	December	January	July	September
	Actual	Actual		Actual	Estimate	
National Index						
Repayment as % of net income	21.6	23.7	26.4	24.4	24.0	24.2
Dublin Index						
Repayment as % of net income	25.7	28.7	32.5	29.5	29.6	30.0

Source: EBS Building Society and DKM economic consultants
Note: EBS/DKM had factored in an additional interest-rate increase when estimating the repayment burden for September. This rate increase did not in fact occur. Therefore the actual repayment burden for September may be somewhat lower than the estimate shown.

Chart 1: Mortgage Repayment Burdens



Source: CBFSAI, Bank of Ireland and Department of the Environment, Heritage and Local Government

By calculating a monthly index the EBS/DKM repayment burden captures the effects of these changes on an ongoing basis. In contrast, the indices published by Bank of Ireland, the DoEHLG and the CBFSAI are annual and so do not capture the impact of changes on a monthly basis but the overall impact on affordability over the course of the year. In its ‘Irish Property Review’ (August 2007), Bank of Ireland put the 2006 mortgage repayment burden at 35.5 per cent (30.5 per cent in 2005) (Chart 1). It also forecasts that the burden will increase further during the year, putting the 2007 burden at above 38 per cent. The repayment burden reported in the main text of this Report also puts the 2006 burden at approximately 35 per cent. However, in this case the repayment burden is expected to remain at a similar level, perhaps even decrease marginally, in 2007. The DoEHLG put the burden at 31 per cent in 2006.

While the underlying premise for each of the affordability indices is to calculate the percentage of income that goes towards mortgage repayments, it can be seen that there are differences regarding the level of the burden across series. These differences are due to the specific underlying assumptions and calculations used in each index. For example, the CBFSAI calculate the mortgage repayment burden as the percentage of average household disposable income spent on the mortgage repayment associated with buying a new house. The repayment is based on a 20-year mortgage term and a 90 per cent loan-to-value ratio. Bank of Ireland calculates the annual cost of servicing a new 25-year mortgage relative to average pay per employee. The EBS/DKM affordability index measures the proportion of net income, required by an average working couple, to fund a first-time buyer mortgage on an average house. It calculates both a Dublin and a national index based on the price of a new house, 90 per cent loan-to-value ratio and 25-year mortgage term. The DoEHLG index is based on a two-earner household taking on a 20-year mortgage.

In general, however, repayment burdens have been seen to increase up to 2006. However, with current developments in the housing market and income growth tending to improve affordability and offset the effects of interest-rate increases earlier in 2007, repayment burdens are likely to remain relatively stable, possibly even decrease slightly, in 2007. (See Box B for scenario analysis relating to mortgage repayment burdens.)

¹EBS/DKM Affordability Index, June 2007.
²EBS/DKM calculate their national affordability index based on a two income household, both of whom earn the average industrial wage, taking on a mortgage with a 90 per cent loan-to-value ratio over 25 years. Pay increases under the national pay agreement, Towards 2016, have been taken into account.

Data from Census 2006 put the proportion of private dwellings, which are owner occupied with a loan or mortgage, at 39 per cent. A further 34 per cent of dwellings are owner occupied without a loan or mortgage while 10 per cent of dwellings are privately rented.¹⁰

There are, as of yet, no real signs of widespread repayment problems in terms of arrears, as the rate of non-performing assets on mortgage credit has picked up only slightly over the last year or so. This slight increase in non-performing mortgages has occurred from the historical lows in recent years and the level remains relatively low¹¹. A 2007 ESRI/IIB survey¹² found that the proportion of respondents finding their mortgage debt repayments a heavy burden increased marginally in recent years, reaching 18 per cent in 2007. The proportion of respondents finding their unsecured debt a heavy burden remained unchanged in 2007. Another recent survey published by the IBF¹³ finds a similar proportion of first-time buyers (16 per cent) reporting it either difficult or very difficult to meet their mortgage repayments. Data from the Examiners Office of the High Court relating to personal insolvency in Ireland show bankruptcy to be a very rare occurrence. In 2006, only eight people were adjudicated bankrupt, and there has been no evidence of a general upward trend in the number of bankruptcies in recent years despite the increase in the level of household indebtedness. The fact that there are no firm indications so far of a significantly higher level of mortgage arrears recorded by the banking system does not preclude the possibility that repayment difficulties are increasing for households and could be manifesting themselves in different ways — for instance, in terms of rescheduling repayments or a greater incidence of arrears in other areas such as utility bills. (Box F looks further at the issue of financial stress in Irish households.)

— Savings

The household savings rate declined to 5 per cent in 2006, having remained relatively stable at around 7.5 per cent in previous years (Chart 29). This fall has been attributed to a higher level of taxes and a reduction in subsidies (agricultural) to the household sector. A look at household savings rates in a sample of European countries shows France and Italy to have relatively high savings rates at almost 12 per cent while Finland are at the opposite end of the scale with a negative savings rate (Chart 30).

2.3.2 Risks to the Household Sector

The key risks arising in the household sector relate to the level of indebtedness and repayment burdens. Households' indebtedness continues to increase, but at a slower rate, and average repayment burdens have stabilised since the last Report. The greater part of both the stock of existing, and flow of new, mortgage debt is at variable rates and, accordingly, the household sector bears the interest-rate risk. However, the key mitigating factors for the household sector, in aggregate, are a positive outlook for the labour market as well as the sector's healthy net worth position.

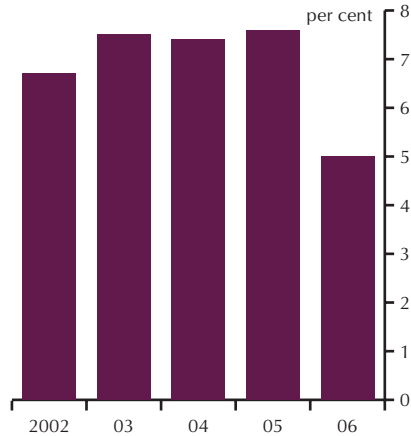
¹⁰ Dwellings being purchased from a local authority, rented from a local authority or voluntary body, owned free of rent or where the nature of occupancy is not stated account for the remaining 17 per cent.

¹¹ Furthermore, the change to IFRS reporting has resulted in some technical changes to the definitions of non-performing assets which might have resulted in non-performing assets increasing.

¹² Irish Household Finances Survey 2007, October 2007.

¹³ IBF/Amárach First-Time Buyer Survey October 2007.

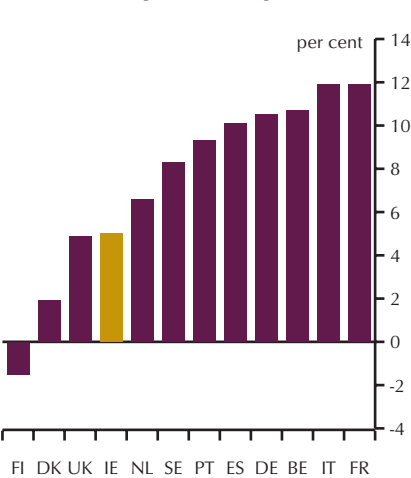
Chart 29: Personal Savings Rate — Ireland



Source: CSO — Institutional Sector Accounts 2006

Note: Savings rate is calculated as household sector net savings as a percentage of household sector's net disposable income.

Chart 30: Personal Savings Rate — European Comparison 2006



Source: OECD & CSO Institutional Sector Accounts 2006

Note: Data for all countries except Ireland from OECD.

Box F: Financial Stress in Irish Households

Household indebtedness in Ireland has increased dramatically over the last decade or so. More recently, interest rates have also begun to increase, with the ECB doubling its main refinancing rate from 2 per cent to 4 per cent since December 2005. This Box looks at whether there is evidence that these developments have led to an increase in the level of financial stress among Irish households. Data from the Irish Survey on Income and Living Conditions (SILC) is used to ascertain if the proportion of households reporting financial stress has increased. For the analysis in this Box, a household is considered to experience financial stress if it reports falling into arrears on its debt repayments in the 12 months prior to the survey.

Given that, from a financial-stability perspective, we are particularly interested in links between households and banks, attention is focused on those households which hold mortgage debt. Mortgages provide the most sizeable links between households and banks and, therefore, could potentially have the most impact on financial stability.

For the sub-sample of households that hold mortgage debt, the data show that 6.5 per cent of households reported some form of financial stress in 2005 – a similar level to 2004 and 2003. Failing to meet scheduled utility payments (4.3 per cent) was the most common form of financial stress experienced in 2005 followed by falling into arrears on mortgage payments (3.8 per cent). Kearns (2003) reported that approximately 5 per cent of mortgaged households experienced arrears on their mortgage repayments for the years 1996, 1997 and 1998. The level was somewhat higher in 1994 and 1995 at a little over 9 per cent and 6 per cent, respectively.¹ This would suggest that the proportion of households experiencing financial stress has not increased significantly from the level seen in the mid- to late-1990s, despite the increase in household sector indebtedness that has occurred over this time.

If one looks at how household composition and income affect the incidence of financial stress across households, single parent households are the most likely to experience financial stress (Table 1), while households with the lowest incomes report the highest level of financial stress (Table 2). As expected, as income increases the proportion of households experiencing financial stress decreases.

Table 1: Proportion of Households Experiencing Financial Stress by Household Composition – 2005

%	Mortgage repayments	Other debt repayments	Utility bills
Household Type			
Adults, no children	4.7	1.8	3.6
Single adult with children	6.1	7.1	21.4
Couple with 1-3 children	2.4	0.9	4.4
Other households with children	4.3	1.0	3.5

Source: SILC and CBFSAI calculations.
Notes: Based on sample of households with mortgage debt. Data are for 2005.

Table 2: Proportion of Households Experiencing Financial Stress by Income Quintile – 2005

%	Mortgage repayments	Other debt repayments	Utility bills
Income Quintile			
Quintile 1	10.3	5.5	9.9
Quintile 2	3.8	1.4	8.0
Quintile 3	1.8	0	1.9
Quintile 4	2.0	0.6	1.3
Quintile 5	1.7	0	0.7

Source: SILC and CBFSAI calculations.
Notes: Based on sample of households with mortgage debt. Data are for 2005.

The SILC has a longitudinal element to it (i.e., some households are surveyed in each year), which allows for the tracking of some households across time. Of those households that were interviewed in both 2004 and 2005, 4.3 per cent reported falling into arrears on mortgage repayments in 2004. This had fallen to 3.6 per cent in 2005. Some level of persistence is seen in the data, with 36 per cent of those households which reported financial stress on their mortgage repayments in 2004 also doing so in 2005. Of those households which reported a failure to meet their mortgage repayments in the 2005 survey, over 60 per cent had already reported some form of financial stress in 2004.

One drawback of the SILC data is that it does not contain information on how much debt households hold. Therefore, although it can be seen that single parent households and/or those households with the lowest income are most likely to fall into arrears, it cannot be determined what proportion of debt they hold.

A further drawback to the SILC data is timeliness, with 2005 being the latest available dataset. Other sources of information, however, can be used to bring the analysis more up to date. In a recent survey² of first-time buyers, 16 per cent reported finding it either very difficult or difficult to meet their mortgage repayments (Chart 1). There was some slight variation across loan-to-value (LTV) ratios with almost one-fifth of those with 100 per cent mortgages finding it difficult or very difficult, as opposed to 12 per cent of first-time buyers who had an LTV of less than 90 per cent. A 2007 ESRI/IIB³ survey on household debt in Ireland found a similar proportion of people reporting that their mortgage repayment burdens were a heavy burden, 18 per cent in 2007 and 16 per cent in 2006 (Chart 2). In both surveys a sizeable proportion of people did not feel their mortgage repayments imposed a burden on them.

CBFSAI data show that the level of non-performing assets on residential mortgage credit has picked-up somewhat since mid-2005.⁴ Prior to this, the level of non-performing assets had been declining since 2003. This might suggest that interest-rate increases are having an impact on the ability of some households to meet their mortgage repayments on time. The level of non-performing assets is now at a similar level to early-2003.

Overall data from the SILC do not suggest that, as of 2005, the proportion of households experiencing financial stress had increased from previous years, despite the increase in household sector indebtedness. More recent CBFSAI data, however, suggest that the interest-rate increases since late-2005 may be impacting on households. While the current rate of non-performing assets is not exceptional it may suggest that interest rates are having an affect on some households' ability to meet their debt repayments. This raises the concern that households may come under increasing financial strain if interest rates were to increase further from present levels.

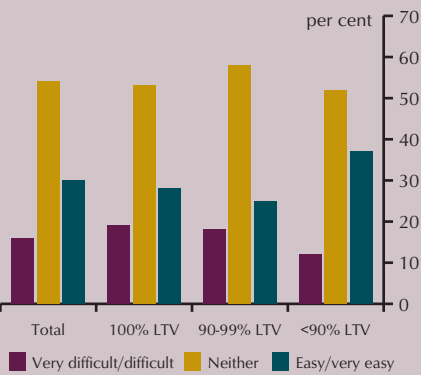
¹Kearns A., (2003), "Mortgage Arrears in the 1990s: Lessons for Today", *Quarterly Bulletin*, CBFSAI, Autumn. Kearns uses data from the European Community Household Panel Survey (ECHP). The SILC was introduced for the first time in 2003 and replaced the ECHP.

²IBF/Amárach First-Time Buyer Survey, October 2007.

³Irish Household Finances Survey 2007, October 2007.

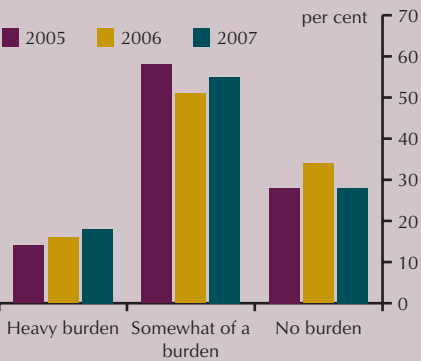
⁴Data are based on a sample of credit institutions.

Chart 1: Ease of Making Mortgage Repayments



Source: IBF/Amárach First-Time Buyer Survey, October 2007

Chart 2: Mortgage Repayments



Source: ESRI/IIB

Chart 31: Debt-to-Assets Ratio of Irish NFCs

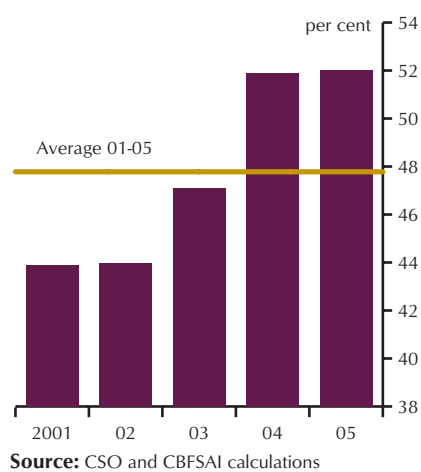


Chart 32: Total Corporate Indebtedness

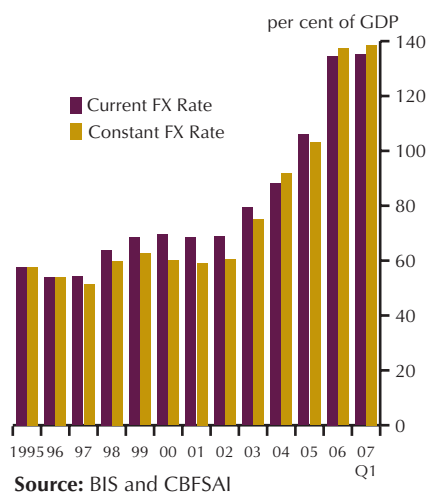
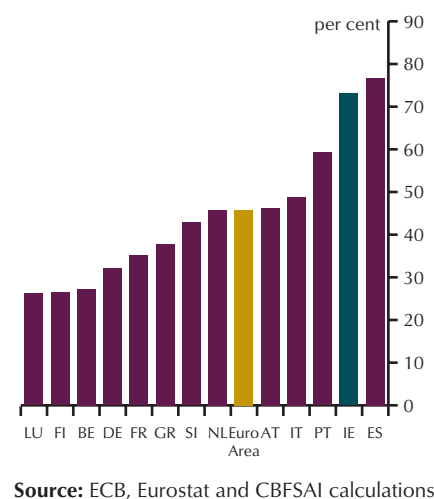


Chart 33: Loans to Non-Financial Corporates as a Percentage of GDP – 2006



2.4 Non-Financial Corporate Sector

2.4.1 Indebtedness

The indebtedness of the NFC sector has increased in recent years. Aggregate indebtedness, where debt includes bank debt and securities other than shares, increased from 44 per cent of firms' assets in 2001 to 52 per cent in 2005 (Chart 31).

Concentrating on bank loans, corporate-sector indebtedness can be proxied by total corporate sector bank debt as a percentage of GDP. Bank debt increased to 139 per cent of GDP in 2007Q1, from approximately 103 per cent in 2005 (Chart 32). This represents a 32 per cent increase in the ratio and marks a continuation of the trend of strong growth in corporate indebtedness that has been apparent since 2003. In the four-year period from 2003 to 2006, the year-on-year increase in the corporate sector debt-to-GDP ratio averaged 23 per cent.

Total bank debt is a measure of borrowing from both resident and non-resident credit institutions. Focusing on resident institutions only, corporate indebtedness increased to 76 per cent of GDP in 2007Q2 (Chart 33). In 2005, the ratio was 57 per cent. Ireland's NFC sector remains highly indebted by European standards. In 2005, Ireland was the third most indebted European NFC sector when measured by debt to GDP, after Spain and Portugal. By end-2006, it is estimated that Ireland was the second most indebted after Spain (76.7 per cent), having leapfrogged Portugal (59.2 per cent). The average level of corporate indebtedness in the euro area was 45.8 per cent in 2006, just over 60 per cent of the Irish level of indebtedness.

As has been the case in recent years, NFC borrowings grew faster than the sector's holdings of deposits in 2006. Measured as loans less deposits, net corporate indebtedness increased to 55.2 per cent of GDP in 2007Q2 from 35 per cent in 2005. Net indebtedness is now more than two-thirds the level of gross indebtedness. In the late-1990s this figure was one-third. The ratio of borrowings to deposits also illustrates their relative growth (Chart 34). In 2007Q2, borrowings were 3.7 times the level of deposits, compared with 1.4 in the late-1990s.

2.4.2 Credit Growth

Credit growth to NFCs has been increasing strongly in recent years, following a period of falling growth in the early-2000s. Since credit growth began to pick-up in 2003, average year-on-year growth in lending to the corporate sector has been approximately 28 per cent. In 2007Q2, year-on-year credit growth was 30.8 per cent (Chart 35). Though this figure remains high, it marks a slowdown in the rate by comparison with 2006Q2, when growth peaked at almost 40 per cent.

The commercial property sector continues to be the fastest growing sub-sector in terms of credit growth. However, there has been a marked slowdown in growth to this sector. In 2006Q2 lending growth to this sector was 60.5 per cent. At end-2006, growth was 53.1 per cent, and in 2007Q2 growth was 42 per cent. Despite this slowdown in credit growth, commercial property-related lending continues to drive loan growth to NFCs. In 2007Q2,

the commercial property-related sector accounted for approximately 85 per cent of the growth in NFC lending (Chart 36). As a result, commercial property-related lending continues to increase as a share of the banking sector's overall loan book, accounting for over 67 per cent of lending to NFCs in 2007Q2 (Chart 37).

There has been a wide variation in the pattern of credit growth across the other NFC sectors. The wholesale, retail, hotels and restaurants sector, which accounts for almost 16 per cent of loans to NFCs, has experienced a slowdown in growth in recent years. Growth in lending to this sector halved in 2006 to 15 per cent from 30 per cent in 2005. This trend appears to be continuing with an increase of 11.4 per cent in the twelve months to 2007Q2. In contrast, there has been a pick-up in lending growth to manufacturing, which accounts for 5.7 per cent of overall lending to NFCs. Growth in lending to this sector was 28.9 per cent year-on-year in 2007Q2.

Both the short-term finance lending rate (less than 1 year) and the longer-term finance lending rate (over 5 years) increased in the twelve months to August 2007. The long-term rate increased marginally less during this period, increasing the spread. In terms of outstanding loan volumes, the relative importance of long- and short-term finance has remained relatively unchanged. Short-term finance (up to 1 year original maturity) accounted for 29.1 per cent of loans in August 2007, compared with 29.7 per cent in August 2006. In August 2007 and August 2006, longer-term finance (over 5 years to original maturity) accounted for 37.7 per cent and 41.2 per cent of loans, respectively¹⁴.

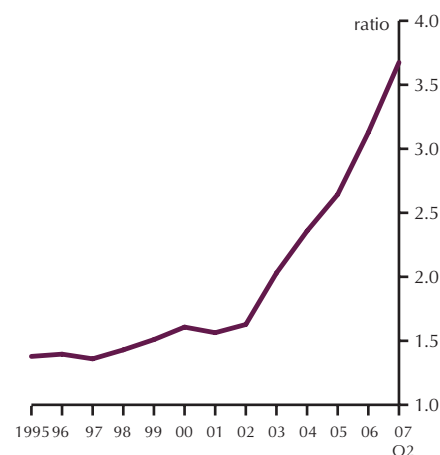
2.4.3 Realised Credit Risks related to the Corporate Sector

Realised credit risks in the corporate sector continue to be at a historically low level. The annualised rate of liquidations involving potentially insolvent firms was 0.22 per cent of all companies, the same as the 2006 rate, and below the long-run average of 0.37 per cent (Chart 38). The share of liquidations accounted for by potentially insolvent firms is forecast at approximately 26 per cent of all liquidations for 2007, significantly below the long-run average of 55.4 per cent. In 2006, this figure was 27.6 per cent.

The repayment burden, calculated as interest to net-operating income, is a measure of the financial pressure on firms in meeting their interest repayments on debt held. New data, available from 2002 to 2006 in the CSO's Institutional Sector Accounts, enables an estimate of the repayment burden of Irish NFCs to be calculated. The repayment burden has been increasing over time, and in 2006 it was 12.7 per cent.

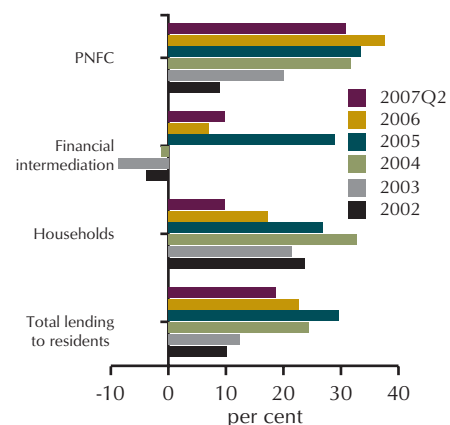
Data from a sample of firms are used to calculate 'debt at risk', a measure of the proportion of debt held by firms with relatively higher probabilities of default. Three indicators are used to identify firms with a relatively high probability of default: those in the lowest 20 per cent of the sample for profitability and liquidity and the highest 20 per cent for gearing. 'Debt at risk' is calculated as the debt held by those firms that have two or more indicators coinciding (e.g., high gearing and low profitability). In 2005, 14.4 per cent of firms were in this category. These firms accounted for 27.9 per cent of the

Chart 34: Ratio of Corporate Bank Loans to Corporate Deposits



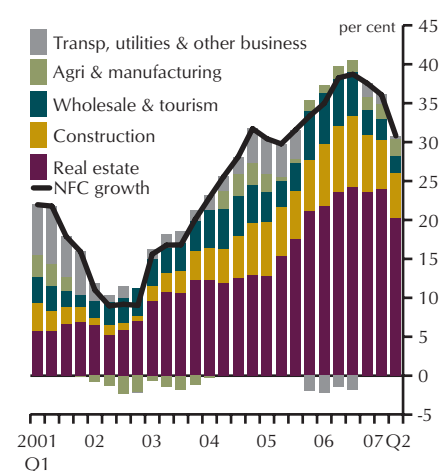
Source: CBFSAI

Chart 35: Sectoral Lending Growth



Source: CBFSAI

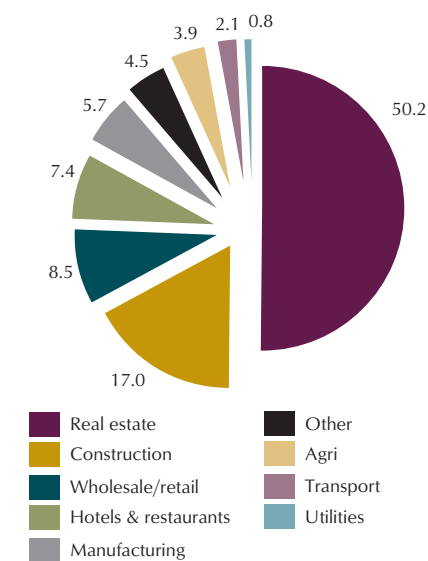
Chart 36: Sectoral Contribution to NFC Lending Growth



Source: CBFSAI

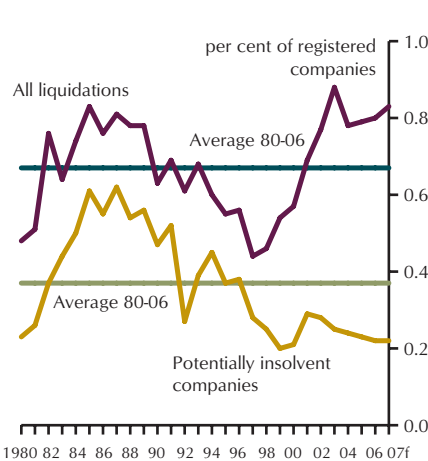
¹⁴ The remainder of outstanding loans are over 1 year and up to 5 years original maturity.

Chart 37: Sectoral Distribution of Advances to NFCs – 2007 Q2



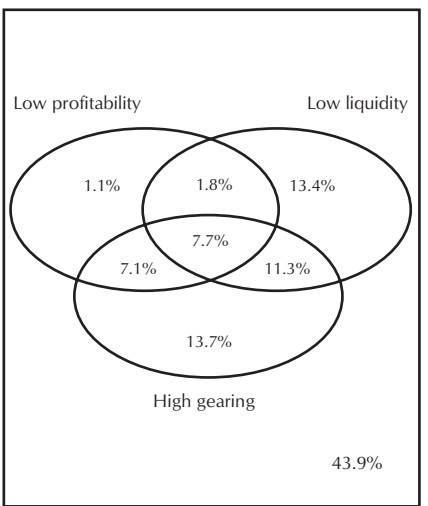
Source: CBFSAI

Chart 38: Liquidations Rate



Source: Department of Enterprise, Trade and Employment and CBFSAI calculations

Chart 39: Corporate Debt at Risk



Source: Bureau van Dijk and CBFSAI calculations

total debt outstanding. The firms with three indicators coinciding (high gearing, low profitability and low liquidity), and therefore which might be considered to be most vulnerable to incur debt problems, accounted for 7.7 per cent of the debt (Chart 39).

2.4.4 Financial Position

Firm-level data provide information on profitability, liquidity and gearing which is used to assess the financial position of Irish NFCs. Preliminary results for 2006 are based on a small sample of NFCs.

The data in Table 5 summarise financial position indicators for the Irish corporate sector. Capital gearing, i.e., the ratio of long-term liabilities and short-term loans and overdrafts to shareholders' funds, is a measure of the indebtedness of companies. Preliminary results suggest that the gearing of the Irish corporate sector decreased slightly in 2006 to 62.3 per cent, from 63.7 per cent in 2005. The gearing level remains below the 5-year average of 69.5 per cent. The ability of firms to meet their debt repayments is indicated by their liquidity levels. Higher liquidity levels insulate firms somewhat from risks associated with higher debt levels. Liquidity levels have been increasing in recent years, and this trend continued in 2006, with the liquidity ratio at 1.43. Profitability increased in 2006 to 12.5 per cent. This marks a continuation of the trend of increasing profitability that has been evident since 2003.

Table 5: Financial Position of Irish NFCs

	Gearing ^a	Liquidity ^b	Profitability ^c
2006	62.3	1.43	12.50
2005	63.7	1.34	11.05
2004	68.2	1.31	10.74
2003	74.2	1.29	9.35
2002	72.0	1.25	9.89
2001	69.2	1.29	10.72
Average 2001-2005	69.5	1.30	10.40

^a Capital gearing = (short-term loans and overdrafts + long-term liabilities)/(shareholders' funds).
^b Liquidity ratio = (current assets/current liabilities). Current assets include trade debtors, stock, work in progress capital, deposits and group loans, and other current assets. Current liabilities include trade creditors, short-term loans and overdrafts, and other current liabilities.
^c Profitability is measured by the return on capital. Return on capital = profit (loss) before tax/(total assets – current liabilities).

Source: Bureau van Dijk and CBFSAI calculations

Other indicators of the corporate sector's financial position are provided by aggregate sales and output data. Provisional figures for the volume of retail sales show an increase of 7.3 per cent year-on-year in July 2007. In July 2006, the volume of sales rose by 6.5 per cent. Provisional figures show overall industrial production decreased by 1.44 per cent year-on-year in 2007Q2. This reduction was apparently driven by a fall in the production of intermediate goods. However, production of both capital and consumer goods increased in 2007Q2, by 3.5 per cent and 11.25 per cent, respectively.

2.4.5 Forward-Looking Indicators

Business confidence has increased in recent months, having decreased somewhat through mid- to late-2006 and into the first half of 2007. Despite this increase in confidence, Irish sentiment has fallen somewhat behind euro

area sentiment since mid-2006. Aggregate sectoral sentiment indicators show that confidence in the construction sector has declined since 2006, with more firms expressing negative rather than positive sentiment¹⁵ (Chart 40). In the retail trade¹⁶ and industrial¹⁷ sectors it appears sentiment remained largely unchanged since mid-2006.

2.4.6 Risks to the Non-Financial Corporate Sector

Recent concerns relating to NFCs have arisen largely from the high rate of growth in lending to the corporate sector. In particular, the strong increases in lending to the commercial property-related sector have been of concern. While remaining high, recent developments suggest that a slowdown is occurring in the growth of lending to both the NFC sector as a whole and the commercial property sub-sector, easing concerns somewhat. Any risks associated with high lending growth are further mitigated by the continued low rate of realised credit risk from the corporate sector and the seemingly robust state of its financial position.

2.5 Banking Sector

2.5.1 Irish Banking System

The Irish banking system consists of a diverse range of credit institutions. In general, these credit institutions can be grouped into two categories. First, there are credit institutions that have significant interaction with the domestic economy through deposit-taking activities and the granting of credit. Second, there are internationally-orientated credit institutions that, while located in Ireland, conduct the majority of their business internationally and have limited direct exposure to the Irish economy.¹⁸ The focus in these sections is on the group of credit institutions with significant links to the Irish economy.

— Developments in the Irish Banking Sector

The domestic banking sector continues to expand robustly; measured by total assets, the sector's size increased by 24.5 per cent in 2006 (Chart 41). This compares with a rate of 30.2 per cent in 2005. Data available for the second quarter of 2007 suggest the rate of increase has continued to moderate (19.4 per cent). However, the current rate of asset growth remains robust when compared with the banking sectors of other Monetary Union members (Chart 42).

The growth rate in banks' total assets can be categorised by counterparty. Assets *vis-à-vis* resident counterparties currently account for 51.4 per cent of the Irish banking sector's total assets. Asset growth *vis-à-vis* these counterparties increased by 15 per cent in the second quarter of 2007. This rate of increase has declined significantly since the end of 2005 (28.1 per cent). Asset growth *vis-à-vis* the non-resident counterparties saw a similar

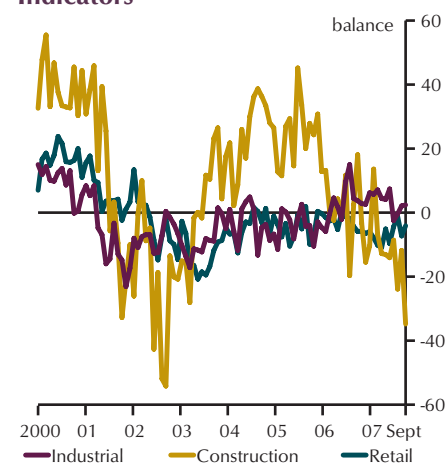
¹⁵ The construction confidence indicator is a composite measure of building firms' assessment of order books and employment expectations for the months ahead.

¹⁶ The retail trade confidence indicator is a composite of retail business assessment of business activity over recent months and of the expected business situation.

¹⁷ The industrial confidence indicator is a composite of industrial business assessment of order-book levels, stocks of finished products and production trends observed in recent months.

¹⁸ For further information on the classifications of banks into the domestic and foreign categories, see Box F: IFSC Banks' Links to the Irish Financial System in the *Financial Stability Report 2006*, CBFSAI.

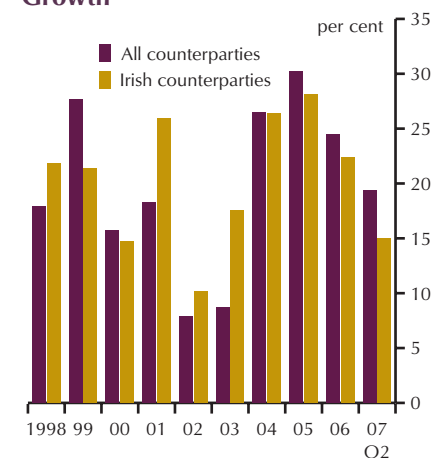
Chart 40: Irish Sectoral Sentiment Indicators



Source: Eurostat

Note: A positive index means more firms have positive than negative sentiment about a sector.

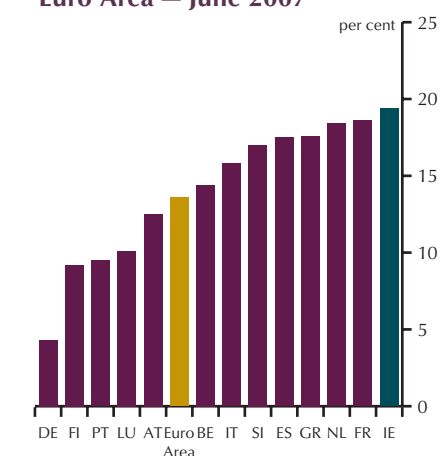
Chart 41: Banking System Asset Growth



Source: CBFSAI

Note: 'All counterparties' is Irish and rest of world counterparties.

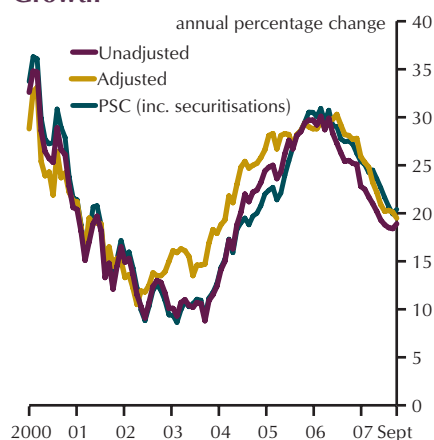
Chart 42: Assets Growth in the Euro Area — June 2007



Source: ECB and CBFSAI

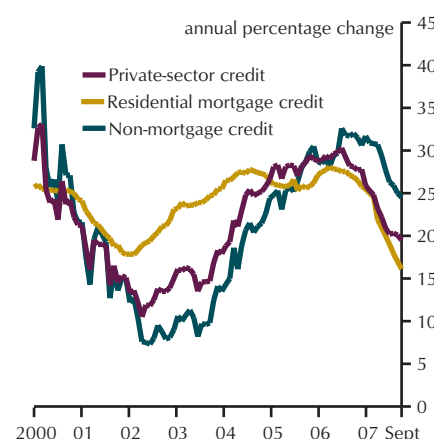
Note: The growth rate for Ireland is based on a sample of domestic institutions.

Chart 43: Private-Sector Credit Growth



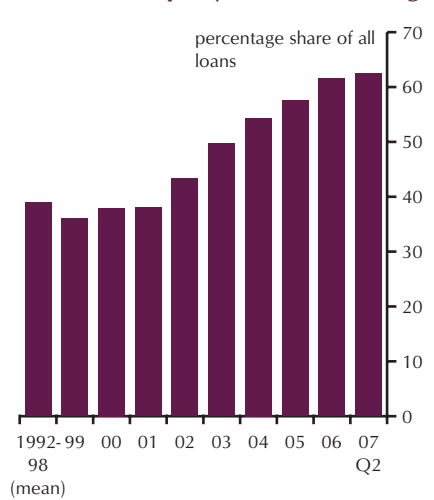
Source: CBFSAI

Chart 44: Underlying Growth Rates of PSC



Source: CBFSAI

Chart 45: Property-Related Lending



Source: CBFSAI

decline — from 33 per cent in 2005 to 24.5 per cent in the second quarter of 2007.

While the growth rate in both categories of assets remain strong, the nature of this business differs by counterparty. An analysis by currency shows that Irish resident assets have expanded, primarily in the form of assets denominated in euro. On the other hand, assets *vis-à-vis* non-domestic counterparties have expanded primarily by way of non-euro currency and with counterparties based outside the euro area. A further decomposition of assets reveals that 85 per cent of assets *vis-à-vis* Irish counterparties consist of loans. This figure is somewhat smaller for non-domestic counterparties (58.3 per cent).

— Lending Growth¹⁹

While lending by the Irish banking system to the domestic economy remained strong in 2006 and into 2007, there has been a downward trend in credit growth. PSC growth has declined from 30.9 per cent in February 2006, the highest rate of credit growth since August 2000, to 25.4 per cent by the end of last year (Chart 43). The moderating trend has continued into 2007 with the annual increases declining to 20.4 per cent in September.

The decline in PSC growth is primarily due to a reduction in the rate of growth of residential mortgage credit (26.9 per cent in September 2006 to 16.1 per cent in September 2007) (Chart 44). Non-mortgage credit growth, which continues to be supported by strong growth from non-financial corporates, also declined in recent months but continues at a high level. The current growth rate is 24.5 per cent (compared with 32 per cent for September 2006).

The rate of increase in credit can be further decomposed into sub-categories of lending. Following a period of increasing credit growth in lending to the NFC sector, data for mid-2007 suggest that the pace of credit growth has declined. The rate of growth in lending to NFCs had increased from just under 30 per cent in the second quarter of 2005 to a peak of 38.7 per cent in September of last year. By the second quarter of 2007, the growth rate had declined to 30.8 per cent. It is difficult to interpret trends in personal-sector credit due to revisions in the underlying data during the course of the year.²⁰ As a result of this reclassification, the increase in personal-sector lending has declined from 26.8 per cent in December 2005 to a current rate of 11 per cent.²¹ While this may be affected by reclassifications, it follows a period of decline in personal-sector credit growth from 29.9 per cent in September 2004 to 26.8 per cent in December 2005. A further breakdown of personal-sector credit shows that housing-related credit growth has also fallen.

The concentration of the Irish banking system's loan book in the broadly defined property sector has increased marginally. Property-related lending, which includes lending for construction and real estate activities as well as

¹⁹ To obtain a more encompassing description of credit growth, this measure of private-sector credit includes securitisations, which traditionally would have been deducted, though it is acknowledged that this may involve some element of double counting. Therefore, historical figures in this section will not correspond to those used in previous Bank publications.

²⁰ The revisions include a transfer of outstanding credit from non-property-related personal lending category to the real estate category.

²¹ These figures are not adjusted for securitisations.

personal housing-related finance, accounted for 74 per cent of the growth in PSC during 2007Q2. As a result of this strong growth, the broad category of property-related lending accounted for over 62 per cent of the banking system's loan book (Chart 45) and this trend looks set to continue, albeit at a slower pace, as the increase in property-related lending continues to exceed the corresponding non-property-related category (Chart 46). Personal housing-related credit accounts for 54 per cent of property-related lending with the remainder accounted for by real estate activities (34 per cent) and construction (11 per cent).

The domestic banking sector has minimal involvement in the Irish subprime residential mortgage market. The Irish market is characterised by limited mainstream banks' involvement in the market, the relatively very small – albeit growing – size of the market and generally modest average loan-to-value ratios.

2.5.2 Financial Conditions²²

– Solvency

The Irish banking sector remains well capitalised; all institutions reported a solvency ratio well in excess of the minimum 8 per cent regulatory requirement – with the majority of banks reporting an increase in both their overall solvency ratios and Tier 1 ratios. The average weighted (the weights used are total assets) solvency ratio was 10.9 per cent for June 2007, an increase from the 2005 figure of 10.6 per cent (Chart 47). The Tier 1 solvency figure has also increased to 8.3 per cent (7.3 per cent in 2005).

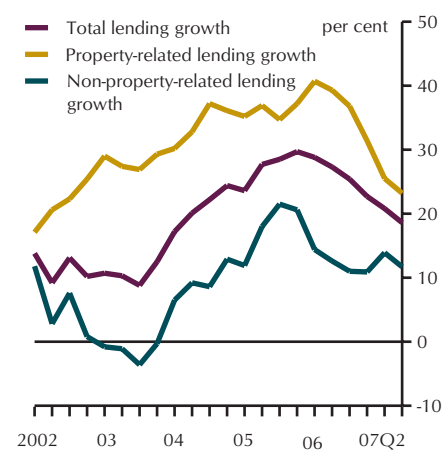
– Liquidity

The liquidity position of the Irish banking sector remains above regulatory requirements, with the liquidity ratio remaining broadly unchanged over the last five years. In 2007, the 25 per cent stock requirement was phased out and replaced by a maturity mismatch approach. With effect from 1 July 2007, the new quantitative requirements of the maturity mismatch approach involve credit institutions assigning their cash inflows and outflows to various time bands based on their contractual residual maturity. Limits are assigned to how much outflows can exceed inflows in any one time-band.

– Profitability

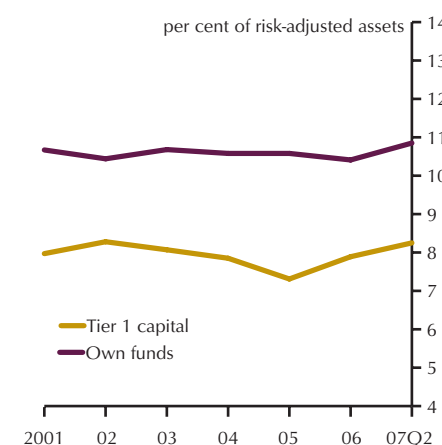
The profitability figures reported for 2006 represent the first full year for all banks reporting under the new International Financial Reporting Standards (IFRS) system. While profitability, as measured by the Return on Assets (ROA), has appeared to stabilise, this follows a longer-run downward trend in profitability. The ROA was 1.09 per cent in 2006 compared with 1.08 per cent in 2005 (Chart 48). An examination of the components of the ROA shows that profit margins (operating income before tax and impairment charges over total income) increased between 2005 (52.6 per cent) and 2006 (57.3 per cent) (Chart 49). However, the effect of an increase in profit margins on the ROA was offset by a decline in asset utilisation. Asset utilisation – the ratio of gross income to total income – fell to 1.9 per cent in 2006 from 2.1 per cent in the previous year. The cost-income ratio declined to 46.1 per cent from 46.3 per cent in 2005.

Chart 46: Lending Growth by Sector



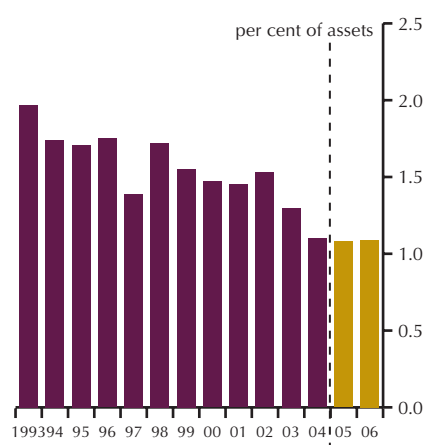
Source: CBFSAI

Chart 47: Solvency



Source: CBFSAI

Chart 48: Return on Assets



Source: Annual financial accounts

Note: 2005 & 2006 figures calculated using IFRS on a weighted average sample of banks.

²² See Box G for an overview of financial soundness indicators.

Box G: Financial Soundness Indicators

Occurrences of financial crises not only have a severe negative impact on the economic activity of the region in which they occur but also on the world's financial markets. The harmful effects of such crises across the globe prompted the International Monetary Fund to develop a set of Financial Soundness Indicators (FSIs) to detect and highlight possible risks to financial stability. The CBFSAI has tailored these measures and outlined a set of FSIs for Ireland, which have been published in Financial Stability Reports since 2004. The aim of this exercise is to monitor the overall health of Ireland's financial system, the strength of its financial institutions and markets and to observe the soundness of the economy's corporate and household sectors, using FSIs.

Table 1 offers a comparison between the FSIs for Ireland for the years ended 2005 and 2006. Included are indicators on the banking system, which seek to measure the sensitivity to market risk of Irish banks, their asset quality, capital adequacy, liquidity, earnings and profitability. Other sections assess the state of non-bank institutions, the corporate sector, households and real estate market. The purpose of monitoring the non-financial sectors is to facilitate early warnings of potential asset quality problems for banks. A selection of macroeconomic variables assessing developments in economic growth, inflation, interest rates and consumption complete the Table. As per IMF guidelines, to assess each indicator we compare its value at the end of the period under investigation to a benchmark, calculated as the variable's mean adjusted by the less favourable standard deviation¹. If the signal registers a 'Yes' value in the Table it has breached its threshold level and is said to signal vulnerability in the financial system. A 'No' value indicates that the signal is operating inside its threshold level and at present is not a cause of concern.² However, these indicators are also assessed subjectively because the benchmark levels depend on historical experience which may not have been ideal from a financial stability perspective.

An analysis of the FSIs for the banking sector reveals that of the six key signals in this area, at present only one is in breach of its benchmark level. The risk based capital ratios, used to assess the solvency of Irish banks and their ability to absorb adverse financial shocks, are above their benchmark levels and are no longer signalling the warnings evident last year. The return on assets indicator (i.e., the ratio of gross income to total assets) continues to signal a warning, with the gap between its current value and trend level decreasing only slightly. This reflects the longer trend decline in profitability also observable in other profitability indicators. As in previous years there is little change in the share of net interest income and the cost/income ratio, as both ratios have remained stable. So too has the proportion of non-performing loans. The value of this indicator of the banking sector's asset quality has remained low. Together these signals indicate the Irish banking system remains well capitalised with ratios well above the regulatory minima.

Corporations and households comprise the non-financial sector. Balance sheet effects mean that financial developments in either of these areas can impact the banking sector. There are two signals of note in the household sector. The first is a fall in the growth rate of household indebtedness, which is a positive development. However, the mortgage repayment burden value is now significantly larger than its threshold value, a reflection of continuing house price growth and increasing interest rates in 2006. Turning to the corporate sector, the high level of credit growth to non-financial corporates since 2005, especially the commercial property-related sector, is highlighted as a possible vulnerability. The rate of liquidations is still at a low level that remains well within its threshold value.

There has been little change in the nature of the signals emanating from the real estate sector in 2006. However, the increasing level of credit to the commercial property sector manifests itself here also. There is an indication that the loan portfolios of Irish banks appear to be heavily concentrated on real estate loans, as was the case 12 months ago. The value of the house price FSI has remained relatively stable and it is still well below the threshold level.

In a small open economy, macroeconomic developments can affect financial stability in both a direct and indirect manner. Overall, the indicators do not give much cause for concern and appear to signal a relatively benign economic environment. The only exception is private-sector indebtedness as its value is still above the threshold level. It should be pointed out, however, that as the figure for 2006 is significantly lower than the 2005 level, the trend is moving in the right direction.

The FSIs are one component in this Report’s broader assessment of financial stability. In summary, the FSIs support this broader assessment by indicating the current robust health of the banking sector as well as the favourable macroeconomic outlook. The indicators confirm also some of the key vulnerabilities highlighted elsewhere, notably, the trend decline in banks’ rate of profitability, the concentration of the banking sector’s loan book in property and households’ repayment burdens.

Table 1: Irish Financial Soundness Indicators

Indicator	2005			2006		
	Threshold	Value	Signal	Threshold	Value	Signal
Banking Sector^a						
Tier 1/risk-weighted assets ^b	7.00	6.79	Yes	6.91	7.69	No
Total capital/risk-weighted assets ^b	10.62	10.54	Yes	10.53	10.71	No
Non-performing loans/total loans ^b	2.28	0.77	No	2.21	0.67	No
Return on assets	1.35	1.08	Yes	1.29	1.09	Yes
Net interest income/gross income	64.66	69.47	No	64.88	75.24	No
Non-interest expense/gross income	61.98	49.04	No	61.80	49.01	No
Corporate Sector						
Loans to non-financial corporates/total loans ^c	5.83	2.87	No	5.89	12.09	Yes
Liquidations rate	0.52	0.23	No	0.51	0.22	No
Household Sector						
Personal debt/GDP ^c	13.74	16.61	Yes	14.31	7.42	No
House prices/disposable income ^{c,d}	8.31	1.51	No	8.16	1.71	No
Mortgage repayment burden ^{c,d}	7.38	1.33	No	7.33	14.74	Yes
Real Estate Sector						
House prices ^{c,d}	16.02	9.48	No	15.98	9.04	No
Mortgage loans/total loans ^c	12.30	-0.62	No	11.98	-4.04	No
Real estate loans/total loans ^c	20.34	22.04	Yes	21.38	28.76	Yes
Macroeconomic Variables						
Private-sector credit/GDP ^c	8.74	19.23	Yes	10.19	13.50	Yes
GDP growth	2.07	5.92	No	2.16	5.74	No
GNP growth	0.70	4.87	No	0.80	6.47	No
Inflation	9.71	2.42	No	9.58	4.90	No
Real interest rates ^e	0.73	0.38	No	0.73	-1.32	No
Real consumption growth	0.53	7.31	No	0.67	5.74	No

^aBanking data are available from 1993-2006, except for NPL data, which are from 1995 to 2006. Also, results for individual banks were weighted by their share of total assets, to account for the uneven structure of the Irish banking sector.

^b(2006) Data for these signals taken at Q2 2007 for a sample of Irish Banks.

^cVariables are calculated as the one-year percentage change.

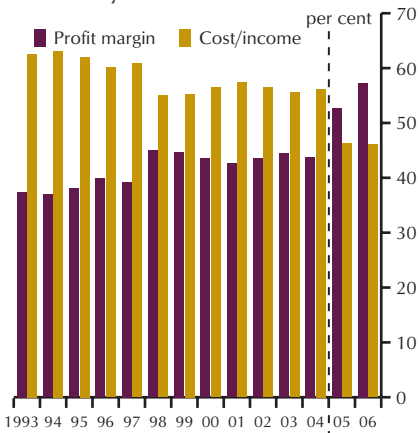
^dBased on Department of Environment, Heritage and Local Government house price data up to end of 2006.

^eData only available up to August 2006.

¹The less favourable standard deviation depends on the indicator. If from a financial stability perspective it is more desirable to have a higher value, e.g., return on assets we subtract our standard deviation figure from the mean in order to obtain a floor, below which signals a concern. Alternatively in the case where a low value is more appropriate e.g., non-performing loans we add the standard deviation figure to the mean to give a ceiling, values above which signal a warning.

²An overview of the methodology used in calculating and assessing the FSIs can be found in Box E of the Financial Stability Report 2004.

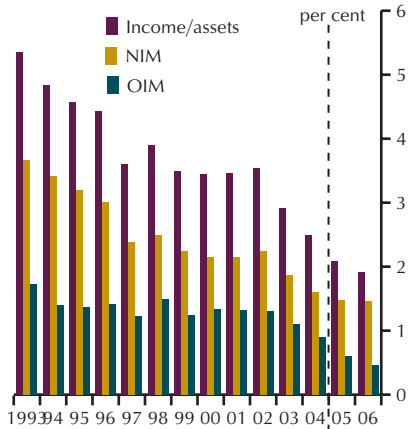
Chart 49: Profit Margins and Efficiency



Source: Annual reports

Note: Cost/income is non-interest expenses as a percentage of total income. Profit margin is operating profit before tax, depreciation and provisions as a percentage of total income. 2005 and 2006 figures calculated using IFRS on a weighted average sample of banks.

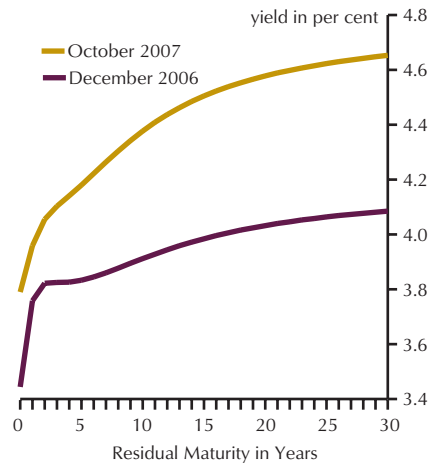
Chart 50: Income Margins



Source: Annual reports

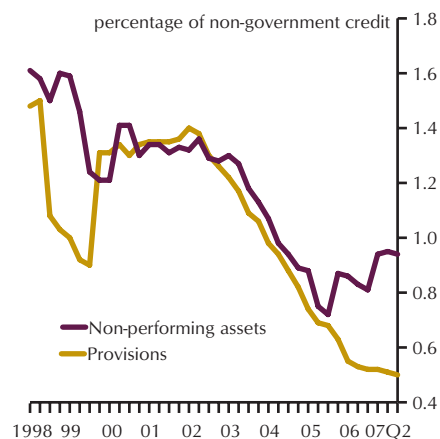
Note: Income/assets is gross income to assets, NIM is net interest income to assets, OIM is non-interest income to assets. 2005 and 2006 figures calculated using IFRS data on a weighted average of sample of banks.

Chart 51: Euro Area Yield Curve



Source: ECB

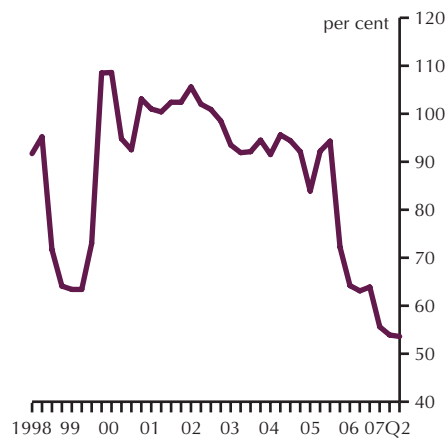
Chart 52: Asset Quality



Source: CBFSAI

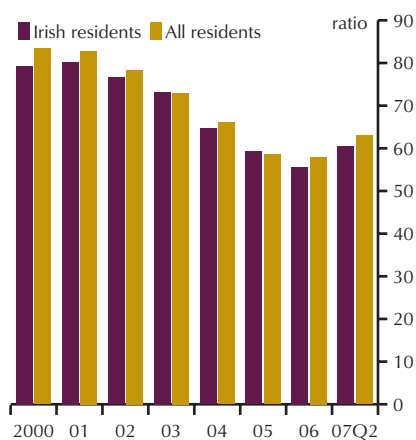
Note: Weighted average of sample of banks.

Chart 53: Cover Ratio of Provisions



Source: CBFSAI

Chart 54: Ratio of Deposits to Loans



Source: CBFSAI

Net interest margins, which have generally fallen over the past decade, have shown signs of stabilising — albeit at historically low levels. Net interest margins declined from 1.47 per cent in 2005 to 1.46 per cent in 2006 (Chart 50). The recent relatively flat slope of the yield curve (Chart 51) limits the margins on banks' traditional business of maturity transformation.

— Asset Quality and Impairment Charges

Asset quality remains high by historical standards with non-performing assets-to-outstanding loans at 0.94 per cent in June 2007, a slight increase from previous figures (0.87 per cent in 2005) (Chart 52). The current ratio is on a par with the rate of non-performing loans in September 2004. Impairment charges, or provisioning, have generally stabilised, declining marginally from 0.63 per cent of outstanding non-Government credit in 2005 to 0.50 per cent by the end of June 2006. The fall in the level of provisions relates to a decline in general provisions over the period (from an average of 0.22 per cent of outstanding loans at end-2005 to an average of 0.16 per cent at end-June 2006). The cover ratio (provisions to non-performing assets) has also fallen. The current ratio is 53.6 per cent down from 72.2 per cent at the end of 2005 (Chart 53).

— Funding

The funding structure of the Irish banking sector has not changed markedly over the last year. Private-sector deposits increased by 18.2 per cent in the year to June 2007, the same rate of growth experienced in the second quarter of last year. The corresponding changes for issuance of debt securities and interbank borrowing were 10.6 per cent and –5.2 per cent, respectively. The Irish banking sector's private-sector funding ratio (i.e., value of private-sector deposits held by Irish credit institutions relative to the value of private-sector credit granted) has remained relatively constant since 2005.²³ At the end of June 2007, the value of private-sector deposits with Irish credit institutions was 60.4 per cent of the value of private-sector loans (Chart 54), an increase over the 2005 figure of 59.2 per cent. The share of non-deposit funding accounted for by debt securities has been increasing in recent years — from 26.7 per cent in 2003 to almost 50 per cent in 2007Q2. According to the ratings agency Standard & Poors, this reflects Irish banks' strategy of broadening their funding base and increasing the maturity profile of their wholesale funding over time (Chart 55). Debt securities account for the largest proportion of non-deposit funding (46.3 per cent) with the proportion of wholesale funding accounted for by interbank deposits declining almost proportionately. Other credit institutions constitute a large proportion of the market for debt securities — more than 60 per cent of debt securities issued by Irish banks are held by other credit institutions. About 55 per cent of these securities have a maturity of more than 2 years, with a further 7 per cent having a maturity of between 1 and 2 years.²⁴ The current level of securitised mortgages is 11.6 per cent of the total stock of outstanding mortgages.

— Market Information

The ratings of Irish credit institutions continue to support the view that the Irish banking system remains healthy. All of the 35 Irish institutions rated by Fitch have a rating of B or higher (Chart 56).

²³ A funding ratio of less than one implies that the value of loans granted by credit institutions is greater than the value of the private-sector deposits they hold.

²⁴ The maturity may be original or residual, depending on the reporting by institution.

The assessment of the Irish equity market was that Irish financial companies were viewed favourably during 2006. In general, the ISEQ outperformed the ISEF (the index of Irish financial companies) during 2006, with the ISEQ exhibiting average annual growth of 24 per cent compared with 21.1 per cent for the ISEF (Chart 57). This contrasts with the trend in 2005 when the ISEF outperformed the ISEQ. Since the beginning of 2007, a significant decline in the year-on-year growth rates of both the ISEQ and ISEF has been observed. The average annual growth rate to September 2007 is 7.95 per cent for the ISEF and 15.9 per cent for the ISEQ. The latest year-on-year rates during September show a decline of 4.1 per cent for the ISEQ and 14.6 per cent for the ISEF. This decline in the ISEF reflects both domestic and international developments.

The Dow Jones Bank STOXX index outperformed the ISEF during 2006. The average annual growth rate in 2006 was 21.1 per cent for the ISEF compared with 23.9 per cent for the Dow Jones Bank STOXX (Chart 58). This represents a reversal of the trend in 2005 when the average annual growth rate was 27.7 per cent for the ISEF and 15.8 per cent for the Dow Jones Bank STOXX. In a similar fashion to the Irish indices the Dow Jones Bank STOXX has also experienced lower growth since the beginning of 2007. The average annual growth rate for Dow Jones Bank STOXX to September 2007 was 9.4 per cent compared with 7.95 per cent for the ISEF. The latest year-on-year rate for the Dow Jones Bank STOXX was a decline of 4.6 per cent.

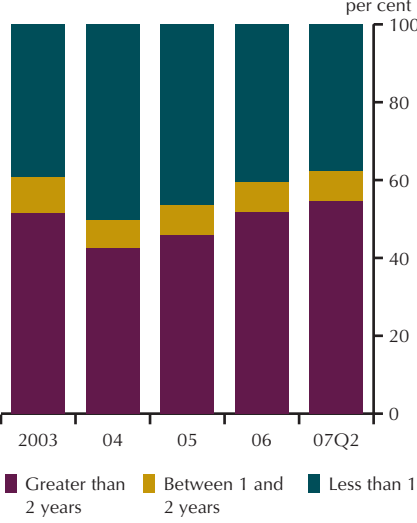
2.5.3 Internal Risks to the Banking Sector

The health of the banking system remains robust when measured by the usual indicators and the results of in-house stress-testing exercises. The international banking system has been affected directly through losses on their US subprime assets and indirectly, through holdings of investments exposed to US subprime losses, from credit commitments to conduits/special purpose vehicles, and from a general disruption to business. However, the domestic banks report no significant direct exposures to US subprime mortgages and very limited exposures through investments and credit lines extended to other financial companies or special purpose vehicles. The domestic banks' shock absorption capacity has not been much reduced by these events.

As a result, the central expectation, based on an assessment of the risks facing both the household and non-financial corporate sectors, the health of the banking sector and the results of recent in-house stress testing is that, notwithstanding the international financial market turbulence, the banking system continues to be well placed to withstand adverse economic and sectoral developments in the short to medium term.

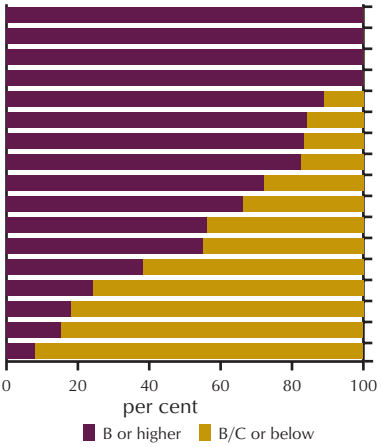
There were a number of internal risks arising in the banking sector which were identified in the 2006 Report, namely, excessive credit growth, concentration on property-related business, a private-sector funding gap, falling net interest margins, and a persistent reduction in provisioning. There has been some improvement in many of these internal risks, where some longer-term trends have stabilised. A key development with respect to the sector is the combined effect on the health of the banking sector of low net interest margins and higher funding costs in an environment where volume growth may be lower in the future.

Chart 55: Non-Equity Financial Instruments by Maturity



Source: CBFSAI

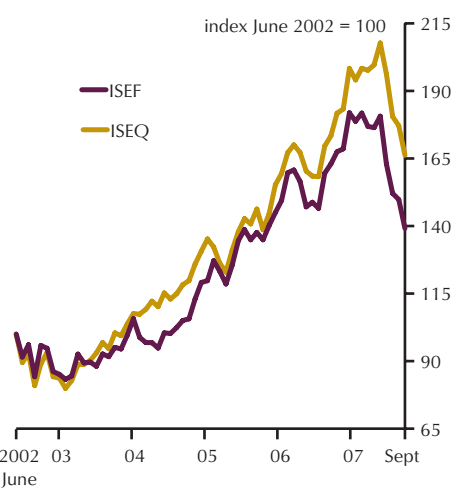
Chart 56: Fitch Ratings (Individual Banks) – September 2007



Source: Bankscope (BVD)

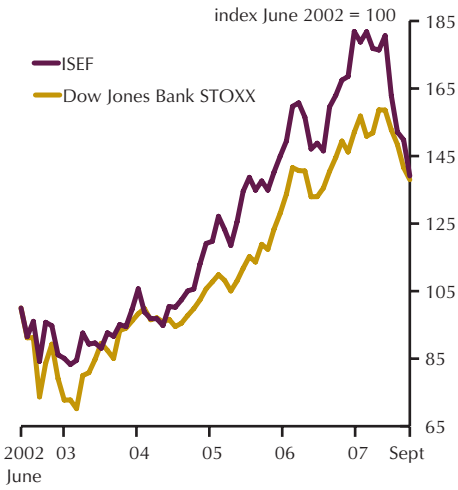
Note: Number of rated banks varies by country and not every bank in a country is rated in the first instance.

Chart 57: Irish Equity Indices



Source: ISE

Chart 58: International Equity Indices



Source: Bloomberg and Irish Stock Exchange

Box H: Results of Top-Down Stress Testing Exercise

The CBFSAI’s overall assessment of the banking sector’s resilience to adverse shocks relies on an analysis of the current health of the sector using a range of indicators as well as testing the system’s response to stress events. This Box outlines the key results from top-down stress tests on the Irish banking sector. The results of this stress-testing exercise, notwithstanding some important caveats, suggest that the banking sector’s shock absorption capacity remains strong.

A stress test is generally an investigation of a bank’s or group of banks’ current financial health when hit by adverse shocks. A “top-down” test is one particular type of stress test¹ which gauges the banking sector’s ability to absorb losses generated under a variety of hypothetical shocks. The size of the losses is benchmarked against the value of capital in order to gauge whether the loss is significant enough to reduce average capital below the regulatory minima. This approach is not meant to imply a direct link between losses and capital in every test but allows us to normalise the results of all the tests on a common denominator. Our sample of banks comprises the set of retail credit institutions and the data on individual banks are weighted by each bank’s size such that the aggregate results will reflect more accurately the aggregate banking sector. The methodology for the tests is identical to that outlined in Kearns (2006).

Credit Risk

Credit risk is the risk that the cash flows of an asset (e.g., loans and investments) may not be paid in full according to contractual obligations. An analysis of the composition of domestic banks’ assets suggests that credit risk might be a significant risk because a major share of assets is held as private-sector loans, as opposed to other assets that carry little or no credit risk. The objective of this stress test on a bank’s asset quality is to assess the ability of each institution to absorb a higher level of non-performing assets (NPAs), and to afford the associated provisioning, without causing a significant reduction in capital below regulatory minima. The test was conducted using scenario analysis where various levels of higher NPAs have been assumed. The aggregate results are that the average capital ratio falls below 8 per cent when the rate of loss-given-default is 50 per cent or higher and when the rate of non-performing assets is over 5 per cent (i.e., approximately a six-fold increase on current levels) (Table 1). These results suggest the banking sector is resilient to a significant deterioration in credit risk.

Table 1: Scenario Analysis: Credit Risk

Proportionate increase in NPAs:	× 2	× 3	× 6
NPA Rate (% of outstanding credit)	1.79%	2.68%	5.37%
Loss-given-default rates:	Percentage points		
25%	–0.23 (10.2)	–0.56 (9.9)	–1.42 (9.2)
50%	–0.47 (9.9)	–1.13 (9.5)	–2.9 (8.0)
75%	–0.70 (9.7)	–1.71 (9.0)	–4.4 (6.7)

Note: Data are the weighted average (by total assets) of absolute changes in capital ratios (percentage points). The weighted average capital ratio is in brackets. The weighted average value of NPAs before any proportionate increase is applied is 0.89 per cent of outstanding credit.

Liquidity Risk

Liquidity risk is the risk that liquid assets would not be readily available to meet short-term liabilities. The liquidity ratio can be calculated as the proportion of liquid assets held by banks to their total borrowing. Liquid assets are typically deemed to be notes and coin, lending to other banks (almost $\frac{1}{2}$ of total liquid assets), holdings of debt securities (almost $\frac{1}{3}^{\text{rd}}$), balances with central banks and lending to governments. The value of borrowings includes borrowing from other banks (almost $\frac{1}{3}^{\text{rd}}$ of total borrowings), and central banks as well as deposits from the non-government sector (almost $\frac{1}{2}$). The average liquidity ratio (measured using the stock approach) is now approximately 27 per cent.

A simple liquidity stress test involves applying a shock to the value of liquid assets and benchmarking the size of the impact on the liquidity and capital ratios. The first approach focusses on a significant withdrawal of Irish private-sector deposits. This test gives an idea as to whether a substantial withdrawal of deposits could be met out of the existing stock of liquid assets. A 10 per cent fall in immediate access deposits equates on average to 4.7 per cent of the value of liquid assets (Table 2). There is a slight fall in the average liquidity ratio (approximately 1 percentage point). The value of deposits withdrawn is equivalent in value to almost 1.6 percentage points of existing capital. The second approach focuses on a proportionate reduction (i.e., a haircut of 10% and 20%) in the value of certain categories of liquid assets. The liquid assets subject to the haircut include assets without a guaranteed market value such as debt securities or government bonds, and exclude assets such as interbank deposits and deposits with central banks. In essence, these two latter types of assets are assumed to remain redeemable at par value. The value of liquid assets is reduced by the value of the haircut and new liquidity and capital ratios are then calculated. A 10 per cent haircut reduces the liquidity ratio by approximately 1 percentage point. The value of these haircuts equates to approximately 1.4 percentage points off the capital ratio. In summary, the banking sectors’ liquidity ratios appear resilient to significant shocks to either deposits or liquid assets.

Table 2: Liquidity Test 1

Test 1:	Proportionate reduction in deposits	
	10%	30%
Ratio of value of withdrawal to value of liquid assets	4.7	14.0
New liquidity ratio	26.5	24.5
Impact on capital ratio	1.6 (8.9)	−5.2 (5.2)

Note: Data are a weighted average (by total assets) of a sample of credit institutions. Original liquidity ratio is 27.4 per cent. The post-shock average capital ratio are reported in brackets.

Table 3: Liquidity Test 2

Test 2:	Proportionate reduction in liquid assets		
	New liquidity ratio	Percentage point change in capital ratios	New capital ratio
10% Haircut	26.2	−1.44	9.0
20% Haircut	25.0	−2.94	7.5

Note: Data are weighted averages of a sample of all institutions. Liquidity ratio is calculated as the value of liquid assets to the value of total borrowings. The proportionate reduction in liquid assets is labelled the ‘haircut’.

Exchange-Rate Risk

Exchange-rate (FX) risk is the risk that changes in the exchange rate affects the local currency value of institutions’ assets and liabilities and off-balance sheet items. *Direct* exchange-rate risk arises when credit institutions have positions in foreign currency and *indirect* risk arises when the foreign-exchange positions taken by financial institutions’ borrowers affect their creditworthiness with knock-on consequences for banks’ asset quality. Direct FX risk is measured using a bank’s net open position in foreign exchange. Exchange-rate risk arises where there is a mismatch between the value of assets and liabilities within each currency. Indirect FX risk can arise when a bank has a significant proportion of its loan book to local residents in foreign-currency loans. In this scenario, the local borrowers are earning in local currencies but their liabilities are in foreign currencies so that, from the banks’ perspective, these borrowers’ ability-to-pay can be influenced by exchange-rate developments. A simple analysis of assets suggests that domestic banks have a relatively small share of their assets *vis-à-vis* domestic residents in foreign currencies and the stress tests show little effect on capital from testing this indirect exposure.

The main approach to stress testing direct exchange-rate risk is to test for a balance-sheet effect. This test captures the impact of a change in exchange rates and the knock-on revaluation of assets and liabilities held in foreign currencies, and whether the size of the consolidated balance-sheet increases or falls when revalued in the local currency. A 30 per cent appreciation of the euro *vis-à-vis* foreign currencies reduces balance sheets (i.e., the total value of assets) on average by approximately 10 per cent. Overall, then, the tests on exchange-rate risks show relatively small effects.

Table 4: Exchange-Rate Risk and Balance Sheet Effects

	Ratio of total assets (<i>ex-post</i>) to total assets (<i>ex-ante</i>)
	%
30% appreciation in euro <i>vis-à-vis</i> all foreign currencies	90.4
No change exchange rate	100.0
30% depreciation in euro <i>vis-à-vis</i> all foreign currencies	112.5
Special case:	
30% appreciation in euro <i>vis-à-vis</i> US dollar only	97.4

Note: *Ex-ante* and *ex-post* refer to the time prior to and after the exchange-rate change.

Equity Price Risk

Equity price risk is the risk that changes in stock prices can affect the valuation of banks’ balance sheets. The average share of Irish credit institutions’ on-balance sheet assets held in the form of shares and other equities is small (1.5 per cent). A significant number of banks report less than 1.0 per cent of their assets in this category. A simple approach to stress-testing equity price risk is to calculate the impact of revaluations of the equity portfolio of each institution caused by fluctuating stock prices. This test assumes a proportionate change in the valuation of the portfolio of equities held by the institution and benchmarks this gain or loss against the value of capital. The analysis suggests that on average every 10 per cent fall in stock prices reduces the value of the equity portfolio (reported on the balance sheet) by a value equivalent to a reduction in the average capital ratio of approximately 20 basis points. The average capital ratios remain comfortably above 8 per cent when larger reductions in the value of the equity portfolio are assumed. The small share of equities held on-balance sheet explains why even severe tests on equity risk have small effects.

Table 5: Impact of Changing Stock Market Prices on Capital Ratios

Scenario	Impact on capital ratio
All stock prices fall by 10%	–0.21pps (10.2)
All stock prices fall by 30%	–0.63pps (9.8)
All stock prices fall by 50%	–1.07pps (9.3)

Note: The impact on capital ratio data is the weighted average (by total assets) of absolute changes in capital ratios [percentage points (pps)] with the new average capital ratio reported in brackets.

Interest-Rate Risk

Interest-rate risk encapsulates the uncertainty faced by banks in assessing the net impact of changes in market interest rates. The level of market interest rates is important for banks in at least three ways. First, interest rates affect a bank’s earnings. Second, interest rates may affect the size of the mismatch (also known as the net open position) between a bank’s assets and liabilities. Finally, interest rates affect the market value of a bank’s bond investments. One approach to measuring interest-rate risk begins with an estimation of the extent to which the maturity of assets and liabilities are mismatched. The value of assets and liabilities are sorted into various time/maturity buckets (by time to repricing for floating-rate assets, or time to maturity for fixed-rate instruments). These data are available for the banking and trading books separately. The cumulative net open position at one-year residual maturity (i.e., the cumulative value of assets minus liabilities with residual maturity up to one year) is multiplied by the value of the change in interest rates. There will be a positive impact on income if the net position was originally positive (also labelled long) and interest

rates had risen. This occurs because the additional value of interest income (proxied by multiplying the value of assets by the increase in rates) will exceed the additional value of interest expense (proxied by multiplying the value of liabilities by the change in interest rates). In contrast, there would be a negative impact on income if the net position was originally short. In general, the results suggest a positive relationship between interest rates and net interest income for the banking book – which is to be expected as banks are engaged in maturity transformation. However, the value of the impact on net interest income is relatively small when benchmarked against capital. The aggregate trading book is in a net short position, so the results suggest a negative relationship between interest rates and net interest income for the trading book; however, the value of the impact on net interest income equates also to relatively small changes in the capital ratio.

Table 6: Earnings and Interest-Rate Risk

Item:	Cumulative net position € billion	Interest-rate change	% change own funds ratio
Banking Book	2.8		
Scenario 1		–200bps	–0.05pps
Scenario 2		+300bps	0.08pps
Scenario 3		+400bps	0.10pps
Trading Book	–0.84		
Scenario 1		–200bps	0.01pps
Scenario 2		+300bps	–0.01pps
Scenario 3		+400bps	–0.01pps

Note: The percentage change on capital is the net position, multiplied by the interest-rate change, with the subsequent value being added to or subtracted from the value of total capital. The cumulative positions are for residual maturities of one year or less. There is a different sample of banks when assessing the banking and trading books.
‘bps’ is basis points.
‘pps’ is percentage points.

The impact of interest rates on the value of bond investments is obtained using a simple present value approach to valuing bonds. The outstanding stock of bonds for each institution is categorised into three maturity buckets (<1 year, 1 to 2 years and > 2 years) and an assumption is made that they are zero coupon bonds. Furthermore, we assume that the yield on these bonds is that recorded in the market at that time and for that particular maturity. We then shock this yield and recalculate the market value of the outstanding stock of bonds using a simple present value formula. The value of the capital loss (or gain) is then benchmarked against the value of own funds. The capital loss on the reduced market value of bond assets arising from a substantial increase in interest rates appears to be relatively small. The data show that a 400 basis points increase in interest rates will result in a capital loss in market value equal in value to an approximate 0.45 percentage point reduction in the capital ratio. In similar fashion to other market risks, the tests on interest-rate risk show relatively small effects.

Table 7: Market Value of Bond Assets

Item	1 year yield	2 year yield	> 2 year yield	Market value bonds (% change)	% change capital ratios
Pre-shock interest rates by maturity:	2.153	2.32	2.827		
Shocks:					
+100bps	3.153	3.32	3.827	–0.965pps	–0.12pps (10.4)
+300bps	5.153	5.32	5.827	–2.84pps	–0.34pps (10.2)
+400bps	6.153	6.32	6.827	–3.75pps	–0.45pps (10.0)

Note: The new average capital ratio is reported in brackets.
‘bps’ is basis points.
‘pps’ is percentage points.

A key objective of the top-down stress test is to assess the shock-absorption capacity of the banking sector in the face of a variety of extreme but plausible hypothetical shocks. The results suggest that the banking sector has adequate capital buffers to

cover the range of shocks considered in the tests. In particular, the banking sector appears resilient to severe credit and liquidity shocks. The corresponding tests on various market risks such as exchange rate, interest rate and equity risks showed very small effects. Nevertheless, there are some limitations to stress testing and to the analysis in this Box in particular. The key limitations, which should be borne in mind, are:

- all losses are immediately written off against capital with no contribution from profits or other reserves;
- no account is taken of the extent to which any of the exposures are hedged;
- no attempt is made to quantify the likelihood of the various shocks occurring;
- the tests have been completed sequentially and it is plausible that a combination of the shocks occurring simultaneously could have a more significant impact on the sector's capital reserves; and
- the results from applying individual shocks are first-round effects. The analysis does not capture contagion effects between banks or second-round effects where banks assimilate the shock and their subsequent reaction impacts on the wider economy.

¹For a fuller discussion of different approaches to stress testing see: Kearns, A., M. McGuire, A. McKiernan and D. Smyth, (2006), "Bottom-Up Stress Testing: The Key Results", *Financial Stability Report 2006*, CBFSAI, pp. 113-122. Kearns, A., (2006), "Top-Down Stress Testing: The Key Results", *Financial Stability Report 2006*, CBFSAI, pp. 99-112. Kearns, A., (2004), "Loan Losses and the Macroeconomy: A Framework for Stress Testing Irish Credit Institutions' Well-Being", *Financial Stability Report 2004*, CBFSAI, pp. 111-122.

First, the concentration of banks' resident loan portfolios in property-related business has persisted. Secondly, the persistently high growth in private-sector credit has declined. Although the current rate remains high, the trend appears to be moving in the right direction. Thirdly, the funding gap of the Irish banking system, i.e., the difference between private-sector deposits and private-sector loans, has stabilised. While any funding gap represents some risk, a fuller assessment of this risk in an Irish context indicates the significant medium-term maturity element of many of these liabilities as well as the relatively wide range of funding options available to the domestic banking sector. Fourthly, preliminary analysis suggests that net interest margins may have stabilised – albeit at a low level. Margins over the longer-term have fallen significantly. This has increased banks' reliance on volume growth to support income growth and has pointed to their need to find alternative sources of non-interest income. Margins may come under renewed pressure in the short term because of higher market funding costs. Finally, the level of loan impairment charges (provisions) is no longer falling and appears to have stabilised, albeit at a historically low level. This trend has reflected both the benign economic environment and the introduction of new accounting standards in recent years. (See Box I for a fuller discussion of recent trends in provisioning.)

A key development with respect to internal risks in the sector is the combined effect on the health of the banking sector of low net interest margins and somewhat higher funding costs in an environment where volume growth may be lower. A combination of a slower housing market, marginally slower economic growth and the impact of the current turbulence in financial markets on banks' willingness to supply loans, could all contribute to lower volume growth in the future. The effect will be to reduce the profitability of traditional banking activities because volume growth in lending will be less likely to continue to compensate for low margins. To some extent, the exceptionally good performance of the Irish economy over the last 15 years

Box I: Asset Quality and Provisioning for Loan Losses

Banks’ impairment provisions for loan losses have fallen significantly in recent years and are at historically low levels. This reduction is generally attributed to a combination of lower levels of non-performing assets and the introduction of new accounting standards. In addition, there is now a divergence between banks’ stock of impairment provisions and their level of non-performing assets – the cover ratio is falling and low. The concern is that this might indicate an additional explanation for lower impairment provisions, namely, that Irish banks are provisioning less for a given level of non-performing assets, possibly because of higher expectations of the recoverable value of collateral. The disaggregated analysis of the provisioning data in this Box does not seem to support this concern. However, the more general concern about provisions remains, i.e., that the low level has decreased slightly the size of banks’ financial buffers against all loan losses.

The level of provisions for loan losses tracked asset quality (i.e., the level of non-performing assets) closely between 1998 and mid-2005 but both series began to diverge thereafter. The level of provisions has fallen lower since that time while the proportion of non-performing assets has increased slightly. Accordingly, the value of provisions set aside to cover the net loss from non-performing assets has fallen sharply (Chart 1).

A significant part of the explanation for lower provisioning has been the introduction of new accounting standards (IFRS) that has reduced the scope for banks to set aside collective (or general) provisions for unidentified losses. The new accounting standards became effective from 2005. The data confirm that these collective provisions are significantly lower now by comparison with 2001 (Chart 2). By contrast, the new accounting standards should not necessarily have reduced banks’ individual (or specific) provisions (i.e., those made against identified losses in existing non-performing assets). It appears that individual provisions fell until 2005 but have stabilised in recent years. Crucially, it appears that banks have maintained their levels of specific provisioning because the cover ratio of specific provisions only to non-performing assets (a narrower definition of the aggregate cover ratio in Chart 1) remains close to its average level (approximately 40 per cent) (Chart 3). In summary, the data suggest that banks have not eased their assumptions on the proportion of non-performing assets for which they need to make provision.

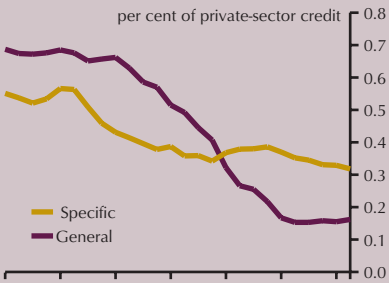
The more general concern about the low level of impairment provisions remains. The reduction in general provisions has decreased slightly the aggregate value of banks’ financial buffers (i.e., defined here as the sum of provisions, operating profits and total own funds). The aggregate value of banks’ buffers relative to risk-weighted assets has fallen marginally since 2001 and this is due, in large part, to the reduction in general provisions. The aggregate value of the buffers was approximately 14.5 per cent of risk-weighted assets in 2001 but this had fallen to 13.3 per cent by 2006 (Chart 4). However, the shock absorption capacity of the banking sector remains robust and the sector remains well placed to cope with emerging issues.

Chart 1: Cover Ratio



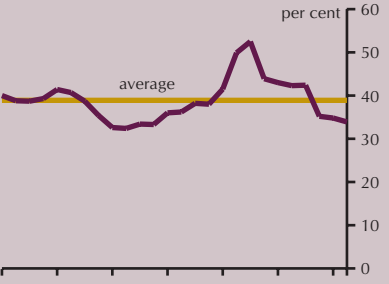
Source: CBFSAI
Note: Ratio of provisions to non-performing loans. Provisions are total provisions.

Chart 2: General and Specific Provisions



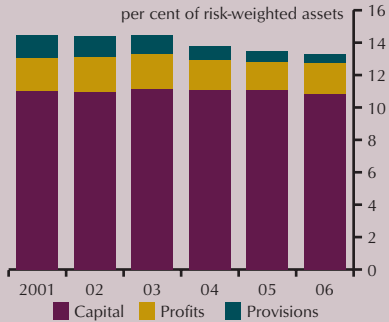
Source: CBFSAI
Note: General provisions are called 'collective' or 'portfolio' provisions and specific provisions are termed 'individual'.

Chart 3: Cover Ratio of Specific Provisions



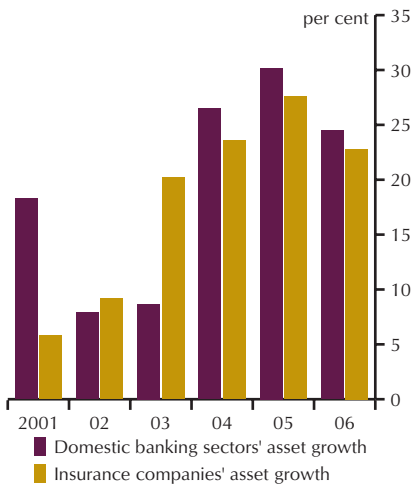
Source: CBFSAI
Note: Data are weighted average ratio of specific provisions to non-performing assets.

Chart 4: Financial Buffers



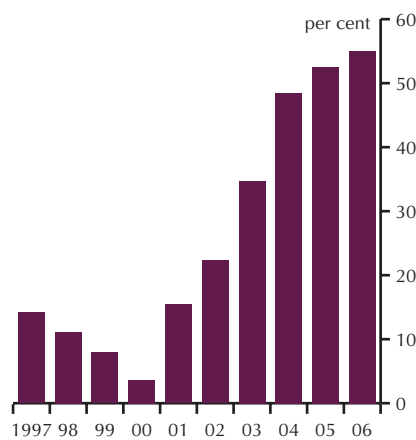
Source: CBFSAI
Note: The aggregate value of financial buffers is the sum of provisions, operating profits (before tax, depreciation and impairment costs) and the value of total own funds.

Chart 59: Domestic Banking and Insurance Companies' Asset Growth



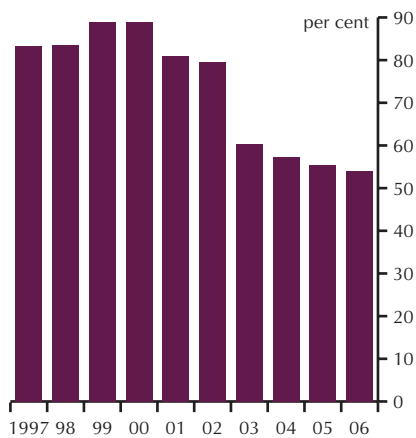
Source: Insurance Statistical Review and CBFSAI calculations

Chart 60: Non-Life Sector — Profit as a % of Premium



Source: Insurance Statistical Review and CBFSAI calculations

Chart 61: Non-Life Sector — Loss Ratio



Source: Insurance Statistical Review and CBFSAI calculations

has placed the Irish banking sector in an unusual position by international standards. Although many Irish banks have significant levels of non-interest income, in general the banking sector has continued to earn the larger part of its earnings from traditional banking activities. Strong economic growth combined with a booming housing market has ensured that traditional banking activities have remained profitable for Irish banks. Although Irish banks share the experience of other countries with respect to the pressures on net interest margins, they have been more than able to compensate for this by rapidly expanding the scale of their on-balance sheet business. However, the current environment may make it more difficult for banks to continue to compensate for low margins with relatively high levels of volume growth.

2.6 Insurance Sector

At the time of publication of the Financial Stability Report 2006, an assessment of the insurance sector suggested that the risks emanating from the sector were quite low and this continues to be the current assessment. Specifically, when assessed by indicators of profitability, claims, cost-income, investment returns and management quality both life and non-life insurance sectors demonstrated a general improvement throughout 2005. The international financial market turbulence has had no material impact on the solvency position of any undertakings because of limited exposures to asset-backed commercial paper and collateralised debt obligations (CDOs) and negligible underwriting of financial guarantees in North American markets.

The insurance sector has continued to grow strongly in 2006. Insurance companies' asset growth declined to 22.8 per cent in 2006 compared with 27.6 per cent in 2005. Despite this decline, the insurance sector continues to demonstrate a healthy rate of growth. The expansion of the insurance sector has been of similar magnitude to that of the banking sector for the last number of years. During the period 2001 to 2006 the insurance sector's asset growth has averaged 18.2 per cent per annum compared with 19.4 per cent per annum in the banking sector (Chart 59).

2.6.1 Non-Life Insurance Sector²⁵

The general improvement of the non-life insurance sector in recent years has continued in 2006 when the sector is assessed by indicators of profitability, claims, cost-income and management quality.

The profitability of the non-life insurance sector has continued to strengthen in 2006. Profitability (measured as a percentage of premium income) rose to 55 per cent in 2006 from 52.5 per cent in 2005 (Chart 60). The improved profitability of the non-life sector was supported by a further improvement in the loss ratio (the ratio of total claims to total premiums) as the ratio declined between 2005 and 2006. The loss ratio was 55.4 per cent in 2005 compared with 54 per cent in 2006 (Chart 61). Real growth in net premiums has been falling since 2002 and actually declined by 3.7 per cent in 2005. In 2006 it declined again, falling by 1 per cent.

²⁵ See Box G: Financial Soundness Indicators for the Insurance Sector in the *Financial Stability Report 2005*, CBFSAI, for a fuller discussion of the indicators used in Sections 2.6.1 and 2.6.2.

The income ratio (the ratio of investment income to net premium) in the non-life sector has remained unchanged since last year, currently standing at 13.2 per cent. This year represents the first year since 2002 (when the ratio stood at 10.3 per cent) that the income ratio has not improved.

In terms of earnings efficiency, a decrease in the ratios marks an improvement. The management expenses ratio (the ratio of management expenses to net premiums) weakened slightly in 2006 having increased to 11.5 per cent from 11 per cent in 2005. The commission ratio (the ratio of commissions to net premiums) improved to 14.5 per cent in 2006, from 17 per cent in 2005.

There are two management soundness indicators — the gross premium to employees ratio and the assets per employee ratio. The average gross premium per employee ratio deteriorated slightly to a value of 0.84 in 2006 from 0.86 in 2005. The assets per employee ratio improved slightly as it increased from 3.4 in 2005 to 3.5 in 2006.

2.6.2 Life Insurance Sector

Following a similar trend to that of the non-life insurance sector, the general improvement in the life sector during the last number of years has continued in 2006 when the sector is assessed by indicators of claims, investment returns and management soundness, notwithstanding a marginal decline in profitability over the last year.

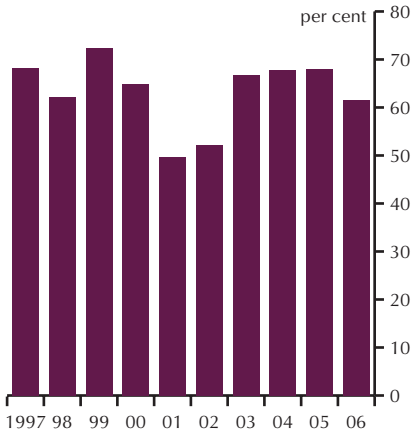
Profitability (measured by profit as a percentage of total income) in the life insurance sector deteriorated to 62 per cent in 2006 from 68 per cent in 2005 (Chart 62). This represents the first year since 2003 that profitability in the life insurance sector has not strengthened. The claims to premiums ratio improved slightly to 52.2 per cent in 2006, a decline from 55.3 per cent in 2005 (Chart 63). This is the first year since 2004 that the claims/premiums ratio has improved. The real growth in net premiums strengthened somewhat in 2006 from 26 per cent in 2005 to 27 per cent in 2006, representing further recovery from the decline in real net premiums seen in 2003.

The return on investment assets (the ratio of investment income to the value of total assets) was 3 per cent during 2006 (Chart 64). Since 2003 the return on investment assets for the life insurance sector has remained broadly unchanged at the current level. The continuing stability of investment returns over the last number of years has contributed to the overall health of the life insurance sector.

In terms of the earnings efficiency ratios, both ratios made gains during 2006. The management expenses ratio continued to improve to 3.5 per cent in 2006 from 4.3 per cent in 2005. The commission ratio also improved slightly from a value of 5.9 per cent in 2005 to 5.6 per cent in 2006.

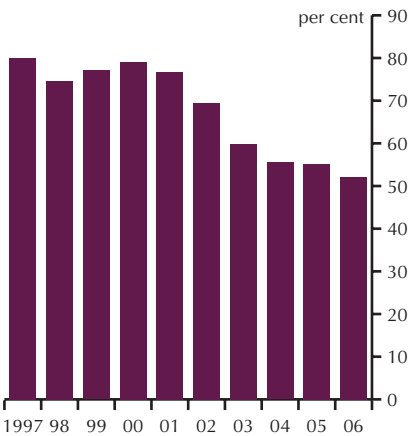
Both management soundness indicators improved during 2006. The average premium per employee ratio (the ratio of gross premiums to the number of employees) rose from 3.8 in 2005 to 5.3 in 2006. The asset per employee ratio improved to a value of 23.4 in 2006 from 17.7 in 2005.

Chart 62: Life Sector — Profit as a % of Income



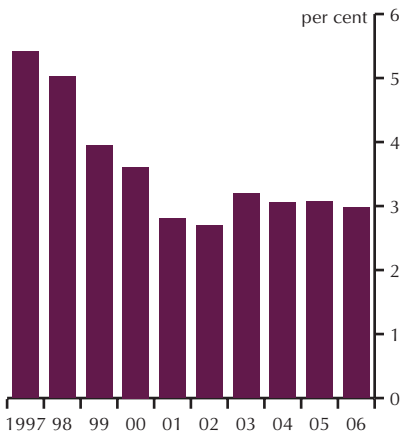
Source: Insurance Statistical Review and CBFSAI calculations

Chart 63: Life Sector — Claims/Premiums Ratio



Source: Insurance Statistical Review and CBFSAI calculations

Chart 64: Life Sector — Returns on Investment Assets



Source: Insurance Statistical Review and CBFSAI calculations

3. International Dimension

3.1 Overview

Given the openness of the Irish economy, its financial system is potentially vulnerable to global shocks and to the current developments in the international financial system. These international risks are important because they are additional to the domestic risks noted earlier. While the global economy continued to expand at a robust pace in the first half of this year, recent developments in financial markets have significantly raised uncertainty about the economic outlook. While it is not yet possible to assess the extent to which the market turmoil may affect activity, the sharp repricing of risk and tightening of financial market conditions, via wider risk spreads and higher term funding, threaten to dampen future global growth. In this regard, a key consideration is that, even if market liquidity improves, risk spreads are likely to remain higher on a long-term basis than they have been in recent years.

Forecasts from the major international economic institutions suggest that the downside risks are most pronounced for the US. This reflects the view that the problems in financial markets are likely to intensify the downturn in the US housing market, where forward-looking indicators of conditions were pointing lower even before the recent turbulence began. In addition to the direct impact of US housing market weakness on GDP, the weakness of US house prices, higher mortgage rates and tighter lending terms also threaten to dampen US consumer spending, which has been the main engine of growth in recent years. While the resilience of the global and euro area economies should be helped by the fact that both were growing solidly before the recent market turbulence, a marked slowdown in US growth would remove considerable impetus to activity in the rest of the world. Quite apart from this dampening influence, however, the generalised repricing of risk and tightening of financing conditions has, of itself, raised the balance of risks to the downside for the rest of the global economy.

3.2 International Macroeconomic Risks and Developments in Global Financial Markets

Global financial markets experienced a number of bouts of volatility over the course of 2007, the most recent of which has seen a sharp and sizeable repricing of risk which has triggered widespread financial market turbulence. The earlier bouts of volatility were less severe, with the first involving a sharp weakening in global equity markets in late-February, while the second involved a sizeable rise in bond yields in June, which has been more than offset since.

In February, although the catalyst for the sharp fall in global equity markets was a sell-off in the Chinese stock market, the key drivers were events within the US which led to a negative re-assessment of the economic outlook. In particular, growing concerns over signs of significant distress in the subprime mortgage sector gave rise to fears that problems in the US housing sector would intensify and damage growth. (See Box J for a discussion of the US subprime mortgage market.) The effect was to prompt a sharp, but short-lived, sell-off in equity markets and a flight to bonds, which pushed down bond yields globally. The decline in US bond yields was greater than that in other major markets, reflecting investors' views of a particularly vulnerable US economy due to persisting worries relating to the weak housing market.

Box J: The US Subprime Mortgage Market

The US mortgage lending business has changed dramatically in the past fifteen years or so with, in particular, the traditional book-and-hold model of mortgage lending, where mortgages were held on bank balance sheets, shifting to an originate-and-distribute model, with mortgage risk now transferred elsewhere. While commercial banks still have a significant role in the mortgage origination and distribution process, securitisation has allowed many financial institutions to use increasingly sophisticated strategies to package and re-sell home mortgages to investors, which has increased the volume of credit available to borrowers, and has been an important factor in the growth of subprime mortgage lending.

The term ‘subprime’ generally refers to borrowers who do not qualify for prime interest rates because they have a bad credit rating or volatile income streams. At the beginning of this year, the stock of securitised subprime mortgages represented roughly 14 per cent of outstanding mortgage-related securities in the US. The stock of securitized subprime mortgages (14 per cent), however, somewhat understates the amount of activity that has been going on in the subprime sector in the past two years. In 1994, fewer than 5 per cent of mortgage originations were subprime, but in 2006 this figure expanded rapidly to 20 to 25 per cent of all new mortgages. The roots of this increase can be traced back to the low levels of market interest rates and generous bank funding that existed in the early part of this decade, which in turn spurred significant volumes of mortgage refinancing, as well as new originations.

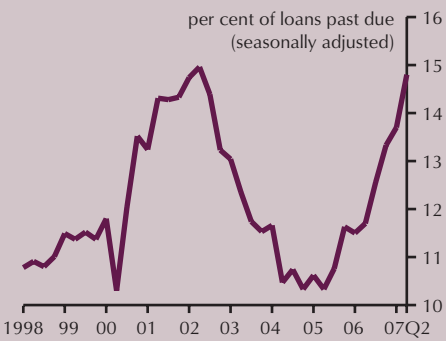
There are a number of factors which have driven the growth in subprime lending. For the household (individual), low interest rates, strong house prices and a positive economic environment increased the demand for subprime loans. At the same time, the ability to securitise, the increase in practices such as simultaneous second liens (piggyback loans)¹, no or low income documentation, adjustable-rate mortgages (ARMs) and ‘teaser rates’², as well as the streamlining of the underwriting process, resulted in much more lending activity competing in the mortgage market. Not surprisingly, some of these developments have also contributed to recent problems. With robust investor demand for securities with high yields, lending and underwriting standards appear to have loosened. In short, an incorrect set of incentives, together with a highly competitive lending environment and inadequate risk controls, appear to have led to a weakening of standards.

During the years of exceptionally strong growth in housing prices and low, stable interest rates, most borrowers did not face large payment shocks and many of those that did could take advantage of home-price appreciation to refinance in a favourable interest-rate environment. Subprime borrowers in 2006 had neither of these elements on their side. They had more difficulty funding refinancing options to lower their monthly payments and have little or no equity in their homes. Overall, while subprime delinquencies are roughly the same as the cyclical peaks in 2002, delinquencies for recent mortgage vintages, notably 2006, are on steeper trajectories and this is likely to get even steeper in the coming months.

The recent problems in the subprime mortgage market have occurred in the context of an overall economic slowdown. The rise in subprime delinquencies and foreclosures from the multi-year lows reached in the middle of 2005 was a consequence of broader economic conditions including rising interest rates and slowing house price growth. This left the most recent subprime borrowers vulnerable to payment difficulties, with problems most severe for subprime mortgages with adjustable rates. The proportion of subprime loans with serious delinquencies rose to about 14.8 per cent in the second quarter of this year, significantly above the recent low seen in mid-2005.

The steep rise in the rate of subprime mortgage delinquencies has resulted in a significant number of subprime mortgage lenders, both large and small, either failing or filing for bankruptcy, as repayments have dried up and lenders have cancelled credit lines. The deterioration in the credit quality of subprime mortgages has, in turn, translated into a crisis of confidence in credit markets about valuations and there has been a sizeable re-pricing of risk, with a massive flight from mortgage-related and structured credit products.

Chart 1: Subprime Mortgage Loan Delinquency



Source: Mortgage Bankers Association

Over the next one to two years, existing subprime borrowers, especially those with more recently originated ARMs, are likely to continue to experience elevated delinquency and foreclosure rates as these loans reach their interest-rate reset point. According to an influential study by Cagan in March of this year³, the interest rate for an estimated 1.1 million subprime loans will reset in 2007 and an additional 882,000 will reset in 2008. Taking account of the fact that mortgage rates have risen sharply in the past few months, the number of delinquencies on these reset mortgages is expected to be greater than previously anticipated. For many of these borrowers, the threat of foreclosure looms, as fewer and fewer of them will be able to refinance because of the slowing rate of house price appreciation, higher interest rates and, especially, the problems faced by subprime lenders. More generally, stricter lending standards are expected to be a source of some restraint on home purchases and residential investment in the coming quarters, which is likely to curtail demand for housing, at a time when inventories are at high levels. In a recent speech, Federal Reserve Chairman Bernanke acknowledged that ‘with many borrowers facing their first interest rate resets in coming quarters, and with softness in house prices expected to continue to impede refinancing, delinquencies among this class of mortgages are likely to rise further’.

Overall, with lending standards tightening, interest-rates increasing, and a large number of adjustable rate mortgages resetting this year and next, tensions in the subprime market will continue to fuel the continued housing market weakness and add to the uncertainty surrounding the US outlook. Recent data suggest that the US housing situation is worsening, with no quick end to the downturn in sight. Home sales, construction activity and house prices continue to show a pronounced downward trend and there are signs beginning to emerge that the housing downturn is spilling over to the rest of the economy, with the decline in housing wealth and credit availability starting to dampen consumption. On the basis of past experiences, subprime delinquencies tend to peak 18 to 24 months after origination, suggesting that the subprime problem is not going away any time soon and the true economic impact may be only beginning to unfold.

¹ Usually a mortgage package of two loans — the first, usually covering 80 per cent of the value of the property could be securitised and sold, while the second loan would cover the remaining borrowing. The second loan would be subordinate to the first in the event of a default.

² ARMs are loans that begin with relatively low payments, and then, after a short period, reset at a higher rate. There are many variations, but most offer a low ‘teaser’ interest rate for the first two or three years before resetting.

³ Cagan, Christopher, (2007), “Mortgage Payment Reset: The Issue and the Impact”, *First American Corelogis*, March.

Although equity markets recovered from mid-March onwards, US Treasury yields were slow to move above their late-February levels as investors remained uncertain about the economic outlook. Investors’ concerns were that weakness in the housing market would prompt a slowdown in spending and a deterioration in the labour market, while also encouraging a tightening in lending standards. Against this background, analysts’ forecasts for US GDP growth in 2007 were revised down, following a brief period of upward revisions at the beginning of the year, and markets began to price-in around 50 basis points of Fed easing in 2007.

However, the Fed signalled that it did not share the market’s concerns in relation to the economic outlook. While dropping the explicit bias to tighten contained in previous Federal Open Market Committee (FOMC) statements at its 21 March meeting, the Fed signalled that it expected the economy to continue to expand at a moderate pace and stated that inflation remained its ‘predominant policy concern’. Initially, data releases supported the market’s view, but then labour market data and, subsequently, broader activity data proved more favourable than expected. Against this background, by May, much of the earlier pessimism about the outlook for the US economy receded

and, with inflation concerns edging up, markets revised their expectations, seeing a greater likelihood of a tighter US monetary policy stance than previously expected. As a result, by the beginning of June, expectations of a cut in US interest rates during 2007 had faded almost completely. Reflecting these developments, as well as evidence of a rise in term premia, bond yields rose sharply, and, by mid-June, 10-year yields were almost 60 basis points higher than at end-April. From the second half of June, however, bond yields started to fall again as problems in credit markets began to surface.

What started as a credit market sell-off in the second half of June quickly evolved into a bout of severe market turbulence characterised by rising volatility, declining liquidity and a sharp repricing of risk. The catalyst for these developments was a significant heightening of concern, from late-June onwards, about the exposure of a wide range of mortgage-related securities and structured credit products to mounting losses in the US subprime mortgage market. This caused problems in the market for asset-backed commercial paper (ABCP) where investors were reluctant to rollover financing following increased nervousness about the associated risks. (See Box K for a fuller discussion of the links between the recent financial market events and the associated financial products.) The general repricing of credit risk moved quickly from the first series of ratings downgrades and signs of problems with some hedge funds exposed to mortgage-backed securities in June onto a more widespread and pronounced adjustment across credit markets in July. This was reflected in a sharp widening of credit spreads, as uncertainty about the size and distribution of credit risk exposures and related losses affected market confidence. Accompanying this was a general loss of confidence in the valuation of mortgage-related securities and structured credit products signalled by growing difficulties in pricing these instruments. Against this background, market liquidity for these products dried up.

Risk aversion heightened further in early-August when the problems which, up to then, had been concentrated on hedge funds and US financial institutions involved in mortgage business, began to spread to the more broad-based banking sector internationally especially through banks' financing of ABCP conduits or structured investment vehicles. News of problems for a number of banks, primarily European, as a result of difficulties on the part of ABCP conduits or structured investment vehicles heightened, already elevated, market nervousness. Thus, the generalised ongoing repricing of credit risk caused a drying up of liquidity in the collateralised short-term commercial paper market. With banks providing liquidity back-up lines to ABCP programmes, which typically rolled-over their funding on a very short-term basis, rollover risks quickly translated into concerns about banks' contingent liabilities.

Arising from the uncertainty about banks' exposures to the general repricing of risky assets, concerns about counterparty risk heightened and problems began to spillover to the interbank market. With liquidity demand surging and banks becoming extremely reluctant to lend, even at very short maturities, overnight rates began to rise sharply. Once signs of these difficulties emerged a number of central banks, led by the ECB, reacted promptly to alleviate the liquidity problems in the interbank money market through the provision of substantial short-term liquidity injections. These actions succeeded in

Box K: Subprime, CDOs and the Financial Market Fallout

This summer, the hypothesis that credit derivatives and hedge funds, among others, diversify risk and in so doing increase the resilience of the financial system, was well and truly tested, as they became closely linked to the eruption of financial market turbulence.

Subprime, Collateralised Debt Obligations (CDOs) and the Search for Yield

Securitisation has boomed for over a decade, while CDOs and similar products have experienced exponential growth in the last two years. Outstanding cash and synthetic CDO amounts increased to \$489 billion and \$450 billion, respectively, in 2006, with the latter representing a doubling from 2005. Like securitisation, CDOs began as a means for banks to shift loans off their balance sheets but quickly became a way to satisfy investor demand for higher returns on assets rated as high as AAA, during the ‘search for yield’ era of recent years.

A CDO is typically issued by a special purpose vehicle (SPV) or holding vehicle that issues notes referenced to a portfolio of underlying debt obligations¹ that are tranchised (i.e., grouped) according to degrees of risk, e.g., senior, mezzanine and equity slices. As demand for CDOs boomed, so too did demand for products to be used in their collateral pools. Re-packaged subprime mortgages were one of the products widely used to fill that demand. Moody’s estimate that almost half of all CDOs sold in the US in 2006 contained subprime debt, with subprime accounting for as much as 88 per cent of mezzanine CDO collateral. A typical mezzanine asset-backed CDO is predominantly backed by BBB and BB rated subprime asset-backed securities (ABSs) tranches. These are repackaged into a CDO, which is divided into layers. The riskiest and highest yielding piece, the equity tranche, becomes worthless at a 5 per cent default rate on the underlying assets. The BBB rated portion becomes worthless should they reach 10 per cent, and so on until one comes to the AAA piece, which only starts to get hurt when defaults rise to about 23 per cent, thus in theory, providing a significant amount of protection. By comparison, a High Grade ABS CDO is typically backed by AA and A tranches of ABS, but AAA tranches of other CDOs, including mezzanine ABS, can also be used as collateral.²

Origination standards appeared to have become very lax, particularly between late-2005 and early-2007. As early defaults on these subprime mortgages rose to around 15 per cent, mortgages in the process of being repackaged were passed back to the originators of the loans (e.g., regional subprime brokers and mortgage lenders), causing a large number to go bankrupt, while those already in CDO pools became of increasing concern. Such concern was heightened by the fact that a large proportion of subprime loans are due to reset from low initial teaser rates to higher rates, from autumn this year through to 2008, at a time when borrowers can no longer count on house-price appreciation to help pay back the loan via refinancing or capital gains on sale.

Initial Signs of Stress in Financial Markets

One of the first signs of stress came via the ABX index, the main benchmark index for subprime securities, which sold off sharply from the beginning of 2007. The next high profile event was the news in June that two Bear Stearns Asset Management hedge funds were in severe trouble after investing in high-rated CDOs. Bear Stearns was forced to put up some of its capital to the creditors who had supplied leverage to the less risky of the two funds, while the funds themselves were left with practically no value for investors to redeem. This heightened concerns that other funds were also likely to be negatively affected.

Many investors had relied on credit agency ratings on these complex products, but doubts arose over their reliability, particularly as the agencies commenced a process of downgrading mortgage-related products previously rated as high as AAA. With investors uncertain as to the market value of CDOs, Federal Reserve Chairman Bernanke mentioning that losses could lie anywhere between US \$50 billion and \$100 billion, and the investor base for such products having become so wide in recent years, it was not at all clear who was ultimately carrying the risks.

Spillover Effects — Hedge Funds

Hedge funds started to experience more adverse conditions and were forced to deleverage and sell assets, as prime brokers raised margin requirements and toughened lending terms. Funds co-owned by BNP, ABN and Goldman Sachs were among those to announce difficulties, with BNP's announcement coinciding with a sharp deterioration in money market conditions and the first and largest single action by the ECB, with an injection of €94.8 billion liquidity into the money market.

Conduits, Structured Investment Vehicles (SIVs) and Asset-Backed Commercial Paper (ABCP)

At this time, there were also rumours that some mono-line insurers, bank proprietary trading desks, off-balance sheet funding vehicles such as conduits and structured investment vehicles (SIVs), and even normally ultra-safe money market funds, were exposed to losses on CDOs.

Conduits are typically nominally-capitalised, bankruptcy-remote special purpose vehicles (SPVs), established by banks, which are usually financed by issuing short-term commercial paper (CP), which is continuously rolled over to fund a portfolio of longer-dated assets. They usually have back-up credit lines provided by banks.

SIVs are also typically SPVs, which are financed via issuance of both asset-backed commercial paper (ABCP) and by more medium-term financing. SIVs tend to be more highly leveraged than typical ABCP conduits, invest in riskier assets and are marked-to-market. SIVs require only limited committed third-party liquidity (typically 10 per cent to 20 per cent of outstanding liabilities). SIV-lites, also known as SIV-CDOs, are akin to a CDO which funds itself via issuance of CP. Their asset diversification criteria are less stringent again and they may borrow upwards of 70 times equity collateral. SIVs and similar structures are estimated to have grown to an overall portfolio size of about \$395 billion. Some reports suggest SIVs acquired about 90 per cent of total AAA paper in the ABS, residential mortgage-backed securities (RMBS) and commercial mortgage-backed securities (CMBS) space.

In August 2007, investors became increasingly uneasy about the assets included in such vehicles, resulting in a drying up of demand for CP, particularly ABCP. According to market estimates, the total amount of outstanding ABCPs was circa \$1.5 trillion at end-March 2007. However, Federal Reserve data for the US market show ABCP outstanding fell by \$194.7 billion in August and \$54.6 billion in September as traditional investors feared subprime contagion. The Bank for International Settlements estimates that ABCP exposure to mortgage-related assets recently reached around \$300 billion, with about a third issued by SIVs.

Initially, the problem was brought into sharp focus after it emerged that a number of CP issuers had exercised their options to extend the term of about \$5 billion worth of ABCP. Subsequently, mortgage lenders and hedge funds revealed that they had failed to refinance their CP and had been forced to access emergency bank credit lines and to begin selling assets. Even vehicles backed by larger international banks announced that they were withdrawing from the CP market after failing to find buyers for their paper. Two German banks were rescued — IKB (30 July) and Sachsen LB (17 August) — after having insufficient funds to meet credit lines pledged to their conduits, and suspicions were heightened further after Singapore's biggest bank, DBS Group Holdings Ltd, admitted that it had exposure to S\$2.4 billion worth of CDOs rather than the S\$1.4 billion (\$921 million) stake reported less than a month earlier, after overlooking a commitment to a conduit. According to Moody's, conduits in Europe, the Middle East and Africa owned as much as \$205 billion of CDOs and high-yielding subprime home loans at the end of May. Moody's reports that SIVs have sold about \$75 billion of assets since mid-July.

Fitch estimates that banks worldwide have \$891 billion at risk in ABCP facilities. With traditional investors reluctant to buy ABCP, more credit lines have been called upon, bringing assets back onto banks' balance sheets, at a time when they already have around \$300 billion in committed — but not yet syndicated or sold — leveraged buyout (LBO) loans which are staying on their balance sheets for far longer than originally anticipated and may also be assuming illiquid collateral from margin calls to highly leveraged entities. Fitch estimates that under Basel II, if European banks were to bring all asset-backed conduits back on-balance sheet, they could tie up \$23 billion of their Tier 1 capital. If the assets ended up being rated BBB instead of AAA this would rise to \$71 billion or about a tenth of existing Tier 1 capital.

Impact on Financial Markets so far

As previously mentioned, money markets came under severe pressure after BNP's announcement of hedge fund difficulties on 9 August. The ECB, followed by the US Federal Reserve, were quick to inject funds to stabilise overnight rates although tensions remained in the term money markets. In euros, sterling and dollars, 3-month interbank rates rose by 40-90 basis points from July to early-September, with 3-month euro area deposit rates trading at around 4.75 per cent, 75 basis points over the policy rate, while 3-month LIBOR rates reached 6-year highs in the US and UK.

CP spreads had widened relative to LIBOR from late-June, and by late-August it was particularly difficult to issue ABCP. Traditional CP holders, such as pension and money market funds, fled to "safe havens" such as government bonds, driving yields significantly lower, bringing 3-month US treasury bills yields circa 2 percentage points below the federal funds target rate at one point, the biggest negative gap since 1982. There were reports that money market funds were keeping their assets in cash-like instruments, as many sustained highly unusual mark-to-market losses. The search for liquidity also saw spreads between German and other EMU government bonds widen noticeably. French 10-year government bond yields widened to around 11 basis points over Germany in early-September, from around 4 basis points before the turmoil. Other areas to be impacted included European covered bond markets, where bid-ask spreads more than tripled, and options markets, where it was reported that there had been a pick-up in writing out-of-the-money contracts in an attempt to generate some premium. In addition, credit spreads widened, appetite for equities, emerging markets financial products and the carry trade diminished and volatility increased. The potentially severe implications of the money market malfunctioning was also highlighted after the Bank of England announced on 14 September that it would provide short-term emergency lending to Northern Rock, one of the five largest UK mortgage lenders, which was heavily dependent on wholesale funding.³

On 18 September, the Federal Reserve cut both its target for the Fed Funds rate and its primary credit discount lending rate by a larger-than-expected 50 basis points to 4.75 per cent and 5.25 per cent, respectively, having already reduced the latter by 50 basis points on 17 August. While equity markets temporarily rallied after that first cut, this time risk appetite rebounded more broadly. Equity and emerging markets rallied, high yield issuance resumed, some leveraged loan deals were completed and spreads on benchmark indices of US and European credit default swaps almost returned to pre-crisis levels. In addition, carry trades were reinstated, benefiting high-yielding currencies to the detriment of low-yielding currencies such as the Japanese yen and Swiss franc. Measures of volatility for stocks, bonds and currencies declined in many cases. The US dollar fell to new lows against the euro, as well as on a trade-weighted basis, amid expectations the Federal Reserve would continue to cut official interest rates.

While a number of investment banks reported large structured credit- and LBO-related write-downs in early-October, investors appeared to take the view that the worst had been disclosed, pushing equity markets such as the Dow Jones Industrial Average, to new cycle highs. 3-month interbank rates eased from their highs, particularly in the US and UK and to a lesser degree in the euro area, and some increase in volumes was reported. Moreover, the rate of decline in US ABCP outstanding progressively slowed, while overall CP outstanding increased modestly.

Nonetheless, as of mid-October, tensions persisted in money markets despite ongoing measures from central banks. 3-month interbank rates, for instance, while they eased somewhat, remained higher than normal relative to policy rates. Reports also suggested banks were still trying to offload certain risky assets and that problems faced by off-balance sheet vehicles had not gone away. It was therefore unclear whether there was a short-term bounce in risk appetite or a more fundamental improvement in market conditions. Certainly, significant uncertainties persisted, and some markets remained virtually closed and rating agencies were still downgrading large chunks of securities backed by subprime mortgages, after US home foreclosures doubled in September from a year earlier.

¹ In a cash CDO, underlying debt obligations can include corporate bonds (CBOs), mortgages or mortgage bonds (CMOs), loans (CLOs), ABS (ABS CDOs) or even other CDOs (CDOs of CDOs, or CDO squared). Synthetic CDOs generally package and securitise credit default swaps on a range of companies.

² Analysts now estimate that mezzanine ABS CDOs may suffer losses all the way up to their AAA tranches, while High Grade ABS will probably be only slightly better off.

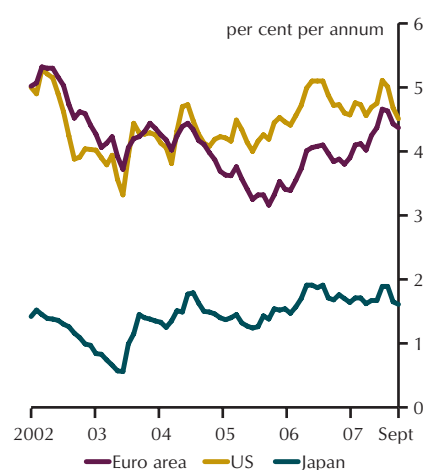
³ On 5 October, the FT reported that Northern Rock had borrowed nearly £11 billion in three weeks from the Bank of England, equivalent to 45 per cent of its end-June deposit base.

alleviating the problems at the very short end of the interbank market, with overnight rates reverting to their earlier levels. Term rates, however, have not yet fully adjusted and spreads between these rates and policy rates remain relatively wide. If this continues, this is likely to place upward pressure on the cost of borrowing, as will the widening of spreads on lower-rated corporate debt. There is also the possibility of some rationing of credit to borrowers. Should the banking sector have to bring significant volumes of ABCP conduits back on its balance sheet, this may incur extra costs for the banks, thereby reducing the funds available for other lending activities and could result in banks adopting a more cautious lending attitude *vis-à-vis* customers and businesses. At this point, the lack of hard economic data complicates a broader economic assessment of the implications of recent events, though clearly downside risks have risen noticeably. Much depends on how market developments and financial conditions evolve in coming months, with the manner in which events unfold in the US, especially in the housing sector, playing a key role.

There is an argument that current market developments could be positive over the medium term for international financial stability by reversing a perceived mispricing of risk in financial markets that has persisted for a number of years. More generally, the possible mispricing of risk may have encouraged excessive risk taking over the last number of years and may have pushed asset prices beyond sustainable values. A pervasive search for yield had characterised financial markets over recent years that had driven risk premia across a very wide range of financial assets to very low levels. Although there is no clear consensus as to the ultimate driving force behind this search for yield, there is little doubt that low interest rates and easy availability of funding had boosted the appetite for risk significantly. There was always the risk that a reversal of the search for yield along with a tightening of credit could have resulted in a widespread correction of a range of asset prices. If a correlated correction across a number of asset classes were to occur simultaneously, this could yet pose a significant threat to financial stability, both globally and to the Irish economy.

Prior to recent events, longer-term market rates had begun responding more than before to the tightening in official rates. In the current market conditions, longer-term rates have oscillated reflecting the offsetting impacts of

Chart 65: 10-Year Bond Yields



Source: ECB

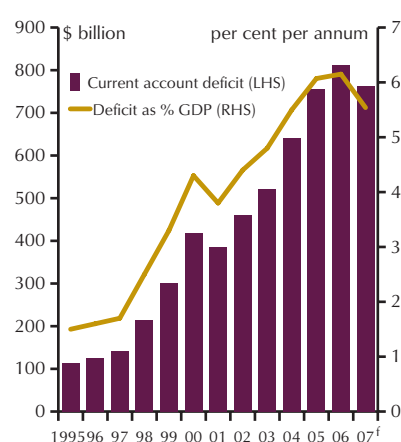
Chart 66: International Oil Prices



Source: Ecowin

Note: Data collected up to early-October.

Chart 67: US Current Account Deficit



Source: Bureau of Economic Analysis

Note: 2006 forecast based on data up to 2007Q2.

expectations for higher inflation with a flight to quality. The behaviour of yields has been different for sovereign and corporate debt; government bond yields have fallen while yields on corporate bonds have increased (Chart 65).

Oil prices have moved higher in recent months. At the beginning of 2007 oil prices declined sharply, reaching their lowest level since mid-2005, but subsequently increased due to lower supply and prevailing weather and political conditions (Chart 66). Looking ahead, expected robust demand, coupled with continued limited spare capacity, is likely to sustain oil prices at relatively high levels. Futures markets suggest that oil prices will remain at high levels in the medium term.

The risk from global imbalances has not abated and remains significant. The US current-account deficit reached 6.5 per cent of GDP in 2006, close to its level in the previous year (Chart 67). Some commentators expect a decline in the size of the deficit in 2007. However, the risk remains that any shortfall in the scale of capital flows required to finance the large US current-account deficit could pose risks for global financial stability. To date, the US authorities have had little problem in financing this growing external deficit. However, the stability of global foreign exchange and other financial markets is vulnerable to any significant drop in demand for US dollar assets.

Turbulence in financial markets has had a significant impact on the valuation of the euro, which strengthened notably against the US dollar and sterling in September and early-October (Chart 68). In the case of the dollar, this represents the continuance of a clear upward trend; following a modest appreciation of 1 per cent in 2006 (compared with the average of the preceding year), the euro increased steadily against the dollar in the first nine months of this year. In average terms, the currency had increased 7 per cent against the US dollar by early-October (compared with the average of 2006), passing the US\$1.40 mark for the first time since its introduction in 1999. The rapid increase against sterling, on the other hand, followed much more volatile movements between the two currencies earlier in the year. As a result, by the start of October the euro was still marginally weaker against sterling — in average terms — than it was in 2006. Looking ahead, the global imbalance issues noted above, and concerns about the US economic outlook more generally, suggest that there are risks of a further weakening of the dollar against the euro in the coming quarters.

3.3 International House Price Developments and Household Debt

In recent years, house prices in many industrial countries increased at unprecedented rates providing a boost to economic growth. While housing markets remained dynamic in parts of the euro area during 2006, there was some moderation in average euro area property price inflation to 6.4 per cent in 2006, down from 7.9 per cent in 2005. Most countries within the euro area that witnessed strong increases in house prices in 2005 experienced some moderation in the course of 2006, and evidence suggests that the housing market has weakened further in the first half of 2007. In Belgium, France and Italy, house prices moderated during the year, while in Ireland a gradual moderation has taken place since mid-2006 (Chart 69). Meanwhile, in Spain, 2006 constituted a continuation of the moderation that started in 2005. It appears that the decline in house price growth reflects a cooling of demand,

as the cost of mortgage debt has risen, reflecting the increase in interest rates, while the growth in mortgage lending also slowed down during 2006.

In the euro area, total debt outstanding has increased to unprecedented levels. However, on a cross-country comparison basis, household indebtedness in the euro area (at 58.5 per cent of GDP) remains moderate compared with other industrialised countries. While rising short-term interest rates may have challenged the ability of some households to service their debts, there are a number of factors supporting household sector balance sheets. The outlook for employment and household income has improved, the pace of new household sector borrowing has slowed in the last year, while signs of moderation in a number of euro area housing markets point to a gradual softening. However, on a national basis, vulnerabilities may be growing for households where the debt-to-GDP ratio is already high, and where the majority of debt is financed at variable interest rates, leaving some households vulnerable to adverse shocks. As a result of the rise in house prices in recent years, Irish households have experienced a significant increase in their net worth despite a steady rise in their mortgage debt.

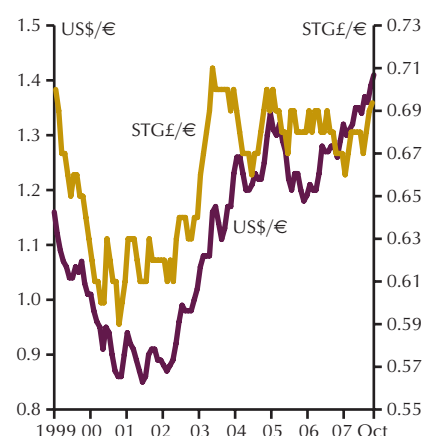
In the US, following an extended boom in housing, the demand for homes began to weaken in mid-2005 and since mid- to end-2006, the US housing market has cooled significantly as sales have fallen and inventories have risen sharply. Alongside this, household sector indebtedness has also risen in recent years (around 80 per cent of GDP). Resulting from rising interest rates and a slowing in house price growth, the recent significant rise in the number of delinquencies and foreclosures in the subprime mortgage market led to a significant amount of subprime mortgage lenders either failing or filing for bankruptcy. With the downturn in the housing market showing no signs of improving, the rate of subprime mortgage delinquencies increasing and household stress rising, a spillover to consumer spending is beginning to emerge, creating uncertainty surrounding the macroeconomy more generally.

3.4 Corporate Sector Developments

While there are no direct links between the subprime sector and the corporate sector, there are some similarities between leveraged buyouts (LBOs) and US subprime lending. Just as subprime mortgages were strongly sought after in 2005 and 2006, leveraged loans in the past year have been in strong demand. In particular, the set of incentives that exist in the subprime sector (strong demand for high yield debt, falling lending standards and weaknesses in underwriting) also emerged in the corporate sector, and in particular the leveraged buyout boom.

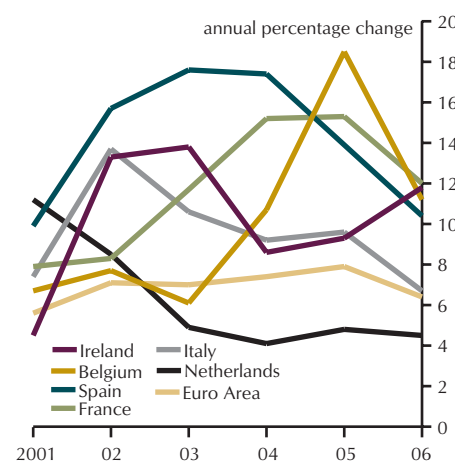
Over the last year or so, there has been a massive increase in private equity buyouts, which has resulted in a sharp rise in leverage, with global LBO issuance increasing by roughly 60 per cent in 2006. The current wave of LBOs differs from prior waves in that the size of the deal is much larger, while the degree of leverage is rising. Few firms are now thought to be too large to be the target of a takeover, with the deal size growing, in part, because a large number of LBOs are being completed by groups of sponsors that pool their resources.

Chart 68: US\$ and STG£ Exchange Rates vis-à-vis €



Source: ECB
Note: Data collected up to early-October.

Chart 69: International House Prices



Sources: National sources and ECB calculations
Note: Weights based on 2005 nominal GDP. Belgian data — new & existing houses; whole country. Spanish & Italian data — all dwellings (new & existing, houses & flats); whole country. French & Netherlands data — existing dwellings (houses & flats); whole country. Irish data — national average house price.

There are a number of factors that have contributed to the rise in LBO activity over the last year or so. Strong corporate balance sheets, combined with the reticence of some publicly-traded companies to undertake new investment, have provided a ripe environment for mergers and acquisitions activity. In addition, firms in certain sectors (such as utilities, consumer goods and retail) with relatively stable earnings and cashflows are making tempting targets for buyouts, while in some cases, public firms have become private to overcome costs associated with regulatory compliance and shareholder scrutiny. Finally, the large influx of capital into private equity funds has contributed to the rise in LBO activity. This wave of LBO activity has introduced some risks, and from a financial stability perspective, the growing leverage can constitute a concern if its financing is likely to prove unsustainable. In recent months, however, LBO activity has dried up somewhat on the back of financial market turbulence.