WORKING PARTY ON FINANCIAL STATISTICS
DEVELOPING FINANCIAL STATISTICS FOR POLICY

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DEVELOPING FINANCIAL STATISTICS FOR POLICY

Note by UK Office for National Statistics

Introduction

The financial crisis has presented new challenges in managing financial risk and uncertainty, and in understanding the mechanics of the credit boom and the securitisation instruments upon which it was built.

In common with many other National Statistical Institutes, the UK Office for National Statistics (ONS) has several roles:

- to provide the tools to help policy-makers and analysts to understand the mechanics of the credit boom, and asset and debt inflation more generally;
- to keep pace with financial innovation in our measurement of gross value added by the financial sector, and in our sectoral balance sheets, and
- to contribute to the transparency agenda, where risk and uncertainty are shifted from the private to the public sector balance sheets.

In response to the financial crisis, ONS launched a project in the autumn of 2008 which addresses how it can best fulfil the three roles above. A series of articles reporting progress were published in the July edition of the Economic and Labour Market review (ELMR), the flagship economic publication of the ONS. This paper is a summary of those articles.

The major focus of the project is on financial balance sheets. UK macroeconomic policy in recent years, with its emphasis on promoting growth within a stable macroeconomic environment, has been supported by measures of output (GDP) and productivity. There has been less policy focus on sectoral balance sheets (financial and non-financial). This project points to ways in which balance sheets, using the best available data and analysis, could be helpful in the current economic situation.

As part of this, the public sector balance sheet will be developed, given the need to include public sector banks. The project also aims to improve the quality and analysis of all data for the financial sector, with particular focus on the coherence between output, employment and profitability. ONS is working in close cooperation with colleagues at the Bank of England, HM Treasury and the Financial Services Authority (FSA) to pursue this agenda.

This paper considers four areas:

- Output and employment in the financial sector
- Corporate sector balance sheets and crisis transmission
- Improving measurement of household savings and wealth
- The public sector balance sheet

The first section considers the impact of the financial crisis on the output and employment measures of the financial sector, and assesses coherence between the two. The sources and methods used to compile
quarterly measures of financial services’ output are discussed in some detail, with a particular focus on financial innovation, and gaps and issues identified. Work to fill these gaps, and improve data relevance, has been ongoing with the Bank of England for some time.

The second section assesses how the evolution of the credit boom might be detected in the sectoral balance sheets published in “UK National Accounts: The Blue Book” data of the past 20 years, for both the financial and non-financial sectors. An analysis of the gaps in recording of assets and liabilities, largely arising due to the opacity of the unregulated, or “shadow banking system”, leads to a list of recommendations to be taken forward in partnership with the Bank of England, HM Treasury and the FSA.

The next section considers issues affecting the household sector balance sheet in the build-up to the financial crisis. Areas of improvement and development are discussed, including the forthcoming release of the analyses and datasets from the Household Assets Survey, to include a demographic breakdown of household debt.

The fourth section addresses issues raised by banking groups coming into the public sector, clarifying how they are presented in the National Accounts and public sector finances and discussing the publication of more asset and liability detail than currently shown in public sector finances balance sheets. The definition of the public sector net debt measure is also clarified, and its relevance among alternative measures of debt is discussed.

Finally, a set of conclusions and recommendations is set out.

Output and employment in the financial sector

One aspect of interest is how the impact of the credit crisis has been captured by quarterly output measures and corresponding measures of employment. Annex A examines, on a sub-sector level, whether the output indicators have captured the real effects of the crisis and how well these indicators have captured financial innovations.

The first part of the analysis examines the broad structure of the financial sector based on the Standard Industrial Classification (SIC). An analysis follows of the relationship between trends and movements in these indicators and the corresponding labour market data. This approach provides initial findings on the quality of output indicators, with respect to expected movements and their coherence with other measures of financial sector activity.

One possible source of employment data for the financial sector is the Labour Force Survey (LFS). Although the sample size of the LFS is likely to be small at this level of detail for some sectors it is still likely to give a reasonable indicator of broad trends over the period. In the UK, the official estimates of employment by industrial classification are generally based on employer surveys. However, in a sector where output coverage is incomplete and activity subject to constant innovation it is likely that LFS employment estimates may offer a better picture of the underlying position of this industry with which to consider the reliability of the output data.

The analysis also shows that direct and indirect output indicators for banks and building societies combined have continued to grow, despite the onset of the crisis. Reasons to support this interpretation are discussed in detail in the annex, although it is worth noting that restrictions in the supply of credit and increases in the price of arrangements fees have all played their part.

Output indicators for the life, non-life and pension industries have either remained stable or declined slowly, although they do not appear to have been impacted adversely by the credit shock.
Despite the developments in activity indicators, the majority of labour market data illustrate a decline in employment in the sub-sectors under analysis. These developments are as expected. The apparent lack of coherence is discussed in further detail in annex A.

Corporate Sector Balance sheets and Crisis Transmission

The impact of the recent events upon the market value of assets on financial corporations and private non-financial corporations’ (PNFC) balance sheets has been significant. In this section the focus is on measurement omissions and issues of transparency in the financial and non-financial corporation accounts and their importance in transmitting the impacts of the credit crisis.

ONS presents these accounts as part of its annual Blue Book publication and they show the stocks and flows of a range of assets and liabilities across institutional sectors. Blue Book data provide extensive detail on the developments in the asset and liability positions of these sectors. Analysis of this data clearly captures one of the most significant causes of the current credit crisis, namely the expansion of banking sector balance sheets. There are however, a number of measurement issues relating to the recording of liabilities of both financial corporations and PNFCs. These issues relate directly to non-regulated financial entities, such as special purpose vehicles (SPVs) and hedge funds, which formed part of what has now become known as the “shadow banking industry”.

In the UK, responsibility for financial stability lies with HM Treasury, the FSA and the Bank of England. ONS, in addressing these measurement issues is seeking to work in partnership with these bodies to bring about their resolution. At the individual company level, the balance sheets of financial and non-financial companies provide us with a snapshot of their financial condition, at any given point in time. Over the recent past however, there has been a lot of attention placed on revenue and earnings, with the possible omission of balance sheet developments. Between 1991Q1 and 2008Q1 the UK economy expanded for 64 consecutive quarters. Given this continued period of economic growth the focus of many analysts had drifted towards these output related indicators. This relative shift in scrutiny from the balance sheet to revenue and earnings was one of the many failures relating to the detection of the credit crisis. The use of off-balance sheet financing by banks for example, through the use of Structured Investment Vehicles (SIVs) and SPVs was in short a sophisticated way of removing liabilities from balance sheets. As such, capital could be freed up to continue with further lending and the generation of greater income.

Annex B discusses the measurement issues relating to the balance sheets of financial corporations and PNFCs balance sheets in more detail and outlines proposals for improving this information, both within ONS and with external stakeholders. One major issue is that, given the nature of the shadow banking system, a significant amount of activity and accumulation of assets and liabilities is being omitted from the financial and non-financial corporations account. To address this, the ONS proposes to;

- engage with partners to address the measurement issues around the shadow banking system, including SPVs, hedge funds and private equity;
- improve estimates of gross trading profits for fund management and asset finance;
- continue work to establish a top-to-bottom account for banks which originally started in 2008,
- introduce improvements to the liabilities of the bonds line in the Financial Account across all sectors and incorporate derivatives data into the National Accounts, and
- develop a coherent approach to asset and liability valuation.
Improving measurement of household savings and wealth

This section looks at issues affecting the household sector in the build-up to the financial crisis which hit the UK in 2008. In particular, it discusses measures of household saving, wealth and debt in the National Accounts, and asks how effective these measures were in documenting the imbalances that developed in the years before the crisis. In some areas, it finds that the measures available in the National Accounts provided good indicators which gave policymakers helpful information as the imbalances developed. In others, the measures could be improved – and this should become possible in future using information from new household survey sources.

A particular area of development, for which there is heavy user demand, is a demographic breakdown of household debt. Initial analyses and datasets providing this are planned for publication in late 2009, and further details of are given in annex C.

The Public Sector Balance Sheet

Each month, ONS and HM Treasury jointly publish statistics on the position of the public sector finances. These attract considerable interest and frequent comment with particular attention being paid to the level of public sector net borrowing and net debt. The latter, in particular, has been affected by the classification of, first, Northern Rock (from October 2007) and subsequently Bradford & Bingley (from September 2008) as public financial corporations.

At the date of its first inclusion, Northern Rock added around £100 billion to public sector net debt (PSND), while Bradford & Bingley added a further £50 billion. Lloyds Banking Group and Royal Bank of Scotland (RBS) have been classified to the public sector with effect from October 2008. Data for these two banking groups have yet to be incorporated into the public sector finances but will have a significantly greater impact than Northern Rock and Bradford & Bingley. ONS has estimated that this will add an additional £1-1.5 trillion to PSND.

Annex D considers issues raised by these banking groups coming into the public sector, clarifying how they are presented in the National Accounts and public sector finances and discussing the publication of more asset and liability detail than currently shown in public sector finances balance sheets. It then addresses the current relevance of PSND in the context of the banks now temporarily being classified inside the public sector boundary, with their very high levels of financial assets and liabilities. Alternative measures of debt are explained, and the definitions of public sector net debt and liquid assets are clarified.

With increased public focus on the public sector finances, some commentators have renewed their calls for a measure of debt including contingent liabilities, pension liabilities and all liabilities associated with private finance initiatives (PFI). Annex D also considers the liability boundary for the National Accounts, business accounting, government accounting and the recommendations for presentation of non-PSND liabilities. Current practice for publication of these liabilities in the UK is also discussed.

The Way Forward – conclusions and recommendations

The corporate sector

UK National Accounts capture the majority of financial activity and of holdings of financial assets and liabilities across all sectors. However, there are gaps which fall, not surprisingly, in areas where the products and the transactions are complex and in many cases opaque:

- the recording of transactions in structured financial products, such as derivatives and hedge funds;
the activity and holdings of securities dealers, venture capital companies, private equity funds and special purpose entities.

**Recommendation 1.** ONS should publish, after consulting other stakeholders, the analysis it has done on gaps in definition and coverage of reporting on financial services, products and entities as a basis for future joint work

**Recommendation 2.** A forum for active cooperation with the FSA, Bank of England and HM Treasury and other stakeholders should be developed, with a view to filling the gaps, and improving existing data. This forum should also consider proposals from ONS to update the presentation of UK Financial Statistics

Some of the gaps and areas where existing National Accounts estimates need improvement, have already been prioritised. However, since resources are limited, it will be necessary to keep progress and finances under review and to recruit support from others.

**Recommendation 3.** Data on derivatives are available and should be incorporated into the National Accounts at the earliest opportunity, which is likely to be Blue Book 2010

**Recommendation 4.** A review of bonds transactions and holdings should be carried out, focusing on the reconciliation of data between the income and capital account and measures in the financial account.

**Recommendation 5.** Estimates of the gross trading profits of fund managers should be improved, given that they are thought to have been underestimated since the cessation of the survey of fund managers in 2000. This will require creation of new data sources, perhaps in collaboration with other stakeholders

**Recommendation 6.** Estimates of the gross trading profits from asset finance activity should be broken down by asset type, which in turn will improve the validation of finance leasing data. This may be achievable for Blue Book 2010

**Recommendation 7.** A top-to-bottom account for banks should be developed to improve quality assurance and sectoral balancing. Work has started on this in ONS, but it requires further input, and data, from the Bank of England

Gaps and issues relevant to the short-term (quarterly) measurement of the output of the financial services sector have also been identified:

**Recommendation 8.** A volume measure of the output of hedge fund managers is needed, given that they are estimated to make up around 6% of fund management activity, and that there is a wider push for more transparency. ONS should work closely with the FSA in this area to secure the source data and resources required.

**Recommendation 9.** The quarterly output of financial advisors and mortgage brokers is not currently measured, and potential data sources should be investigated.

**Recommendation 10.** ONS’ work on improving its price indices for deflating banking sector output should be revisited, and use of the current deflator (average earnings index (AEI) for financial intermediation, excluding bonuses) reviewed.

ONS recognises that there are issues with its surveys of financial corporations (other than banks and building societies):
• the quarterly surveys of financial flows (transactions) suffer from incomplete coverage, inconsistency of data requested across survey forms, small sample sizes;
• the annual surveys of balance sheet data do not cover securities dealers, or the managers of hedge funds and private equity funds; and
• the financial balance sheets of PNFCs are covered by a quarterly survey, but collect much more data on assets than liabilities.

These issues should be addressed as part of a more wide-ranging strategy to improve the coverage and data quality of ONS surveys. With particular reference to the financial sector, the strategy includes:
• investigation of new registers to improve coverage of the financial sector;
• improvement of the reconciliation between quarterly and annual data;
• assessment of the potential use of administrative data especially regulatory data from the FSA; and
• review of the financial surveys carried out in other countries where balance sheet, flows and revaluation data are collected on a single quarterly survey form.

Recommendation 11. Development of the Securities Dealers’ Inquiry should be treated as a priority, including finding solutions to existing data discontinuities and conceptual difficulties with deflation. Some progress will be made over the next year, but full implementation in National Accounts may take until 2012.

The household sector

ONS is currently reviewing data sources for the household sector balance sheets in the National Accounts. Work is being concentrated on improving the estimates for unquoted shares, the first conclusions for which are likely to emerge in 2010.

ONS recognises the user demand for more detailed data on household assets and liabilities, in particular debt. The first results of the new survey, the Household Assets Survey (HAS), covering the period July 2006 to June 2008 (Wave I) will be available towards the end of 2009 and will include analysis of the assets, liabilities and net wealth of households. One chapter will be dedicated to household debt, and will focus on non-mortgage borrowing and arrears. There will also be a chapter on people’s attitudes to saving, borrowing and retirement. A follow-up survey looking at indebted households in more detail, started in October 2007, and looks at households at risk of financial exclusion.

The public sector

The ONS, Bank of England and HM Treasury are working closely with the Royal Bank of Scotland and the Lloyds Banking Group to:
• correctly classify all subsidiaries of the two groups;
• incorporate the relevant data into the public sector finances; and
• resolve disclosure issues so that more asset and liability detail can be published, in the interests of transparency.

Recommendation 12. ONS should pursue the objective of publishing data separately for the public financial corporations sub-sector, both in the public sector finances, and in the National Accounts. This recommendation covers current work to include public sector banks as part of public sector finances; ONS plans to report further on this by end 2009.
ONS does not systematically publish data on government, or public sector, liabilities which are outside the boundary of PSND.

**Recommendation 13.** ONS should move progressively towards comprehensive coverage of public sector assets and liabilities, as is the practice of NSIs in some countries. This should start with a feasibility study to show what data can be assembled to improve the overall picture of financial risk. The work on Whole of Government Accounts by HM Treasury should contribute to the solution.

**Recommendation 14.** ONS should work actively with Eurostat to develop tables of total pension liabilities in line with SNA 2008. The first step should be a plan for preparing estimates of funded and unfunded pension liabilities calculated on an actuarial basis, following a workshop in July 2009. This will require liaison with Eurostat and other Member States, working towards production of the supplementary table required, under the ESA Transmission Programme, from 2014.
ANNEX A: OUTPUT AND EMPLOYMENT IN THE FINANCIAL SECTOR

Overview of the financial intermediation industry

The financial industries are classified within Section J of the UK standard industrial classification (SIC). The industry is broken down into three main groups; financial intermediaries (Division 65), insurance and pension funds (Division 66) and financial auxiliaries (Division 67). Together they account for around 7 per cent of UK gross value added (GVA).

Unlike most other industries, ONS relies heavily on external data sources to measure the output of the financial sector. One of the key data suppliers is the Bank of England who supply the bulk of the data used to measure Division 65. The majority of Division 66 uses data from the Association of British Insurers (ABI) - the trade association for the UK insurance industry. Division 67 relies on financial market data, trade association data and some ONS data.

Each of these industries has been reviewed in the last few years as part of the Index of Services (IoS) Industry Review programme where various estimation issues have been considered. Further details on the improvements made are detailed within each section, as well as ongoing issues and difficulties in interpretation.

Short-term output measures – sources and methods

Division 65 – financial intermediation, except insurance and pension funds

Although SIC splits Division 65 by institutional type, the quarterly output measure of activity makes use of data based upon activity type. As such it is not possible to identify output for private banks, central banking and building societies individually. Instead the ONS receives data for all three in aggregate relating to directly measured activity (fees and commissions earnings) and indirectly measured activity (essentially the spread earnings on loans and deposits).

Directly measured output currently accounts for just over a third of this division with indirectly measured activity (FISIM) accounting for the other two thirds of activity (see Table 1). Prior to the 2009 Blue Book, there were measurement gaps within the division. The data now include estimates for spread earnings on dealings activities and operating income from non-financial assets owned by these institutions which had previously been omitted. The inclusion of this data is as a result of joint work with the Bank of England and this working relationship will be important going forward.

Table 1: Weight in Whole Economy GVA (of 1000)

<table>
<thead>
<tr>
<th></th>
<th>FISIM</th>
<th>Direct</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks and building</td>
<td>25.8</td>
<td>12.0</td>
<td>37.8</td>
</tr>
<tr>
<td>societies</td>
<td>3.0</td>
<td>2.8</td>
<td>5.8</td>
</tr>
<tr>
<td>Other</td>
<td>28.8</td>
<td>14.8</td>
<td>43.6</td>
</tr>
</tbody>
</table>
**Fees and commissions**

Since the 2006 Blue Book, bank fees collected from the Bank of England Profit and Loss Survey have been used as the basis of output measurement for the directly measured element of banking. Two issues have been identified for further work. First is the forecasting (or nowcasting) of the series for the most recent periods, which the ONS will take forward with the Bank of England once the time series are sufficiently long.

The second issue is deflation. As no specific deflator currently exists, the Average Earnings Index (AEI) for financial intermediation (excluding bonuses) is used. Work on improving price indices for the banking sector has been ongoing within ONS, and the results will be evaluated for use in the National Accounts.

When the fees series was introduced, the recommendation for deflation was to use the AEI for financial intermediation excluding bonuses, despite arguments by key customers that using the including bonuses series would be better. The use of the excluding bonuses series is justified on the following grounds:

- the excluding bonuses series is a good proxy for the including bonuses series (due to the trends being similar);
- earnings including bonuses series are not included elsewhere in services (i.e. maintains consistency);
- it could be argued that when pricing products banks base the trend of prices on expectations of normal wage payments; and
- this is only a stop-gap series anyway - it is not the ideal solution and was an incremental improvement over the previous methodology of using employment data.

**Financial intermediation services indirectly measured (FISIM)**

In the 2008 Blue Book, the ONS introduced new methods for calculating the output of FISIM and allocating it to consuming sectors in line with European Council Regulations.

The new output method uses detailed data by sector on the interest charged on, and stocks of, loans and deposits. A volume measure is derived by deflating the stocks with the GDP Expenditure implied deflator, excluding FISIM.

In terms of short-term measurement, although the new method is conceptually stronger, the data were only available quarterly initially, rather than the monthly availability for the old method, but work by the Bank of England has led to the provision of monthly stocks data which are used to calculate early volume estimates of FISIM. The monthly stocks data are used in a co-integration model to forecast FISIM for the preliminary estimate of GDP. They are fully available for the second data vintage, thereby improving the quality of the early estimate of FISIM.

**Other financial intermediation**

Measurement issues in this sector relate to the factoring/invoice discounting and pawnbroker elements of other credit granting which are not captured by current data sources. Both of these sectors may be expected to pick up in volume terms during an economic downturn. As firms want to increase their cash holdings, in response to the restrictions in the supply of credit, the ability to sell on invoices even at a discount will be used by more firms. The demand for personal pawnbroker services is likely to increase as
individuals lose jobs and job security. The volume of activity of pawnbrokers is not likely to be large, but the interest charged is often significant.

**Division 66 – Insurance companies and pension funds**

Volume measures for this division are obtained using quantity data, and not via deflation. The ABI publish volume data on a comprehensive range of life insurance and pension products. Data are published in September for the previous year and the periodicity is annual. Coverage is very good with about 96% of the market (in terms of premiums paid) accounted for.

The ABI publish volume data for UK motor insurance. These are quarterly data with excellent coverage of insurance companies’ exposure to risk. Their use avoids the problematic issue of deflation.

**Division 67 - Financial auxiliaries**

67.11 - Administration of financial markets

This group includes those financial exchanges that are based in the UK. At the time of the review, there were other exchanges (for example, London Metals Exchange, Virt-X, International Petroleum Exchange) but given the dominance of the London stock exchange (LSE) and the London International Financial Futures and Options Exchange (LIFFE), it was decided to only measure these exchanges. However, new EU rules introduced in 2008 mean that the LSE no longer has a monopoly on share trading and there are a number of competitors (such as Chi-X and Turquoise amongst others). At present, there are no concerns with the coverage, but it is something that should be considered for the future.

67.12/1 - Fund management activities

This relates to FSA regulated funds, hence by definition excludes hedge funds. The bulk of funds under this heading belong to life insurance and pension funds.

- Insurance - 39%
- Pension Funds - 34%
- Retail - 14%
- Other 9%
- Central Banks/Government - 2%
- Private clients - 1%

A recent review introduced indicators for unit and investment trusts for retail funds and total financial assets of insurance and pension funds for the institutional funds. Whilst this will not be exhaustive, it does cover the main elements (87% using the breakdown from the Investment Management Association (IMA)).

67.12/1 - Security broking and related activities

1. The exchange volume indicators serve a dual purpose within Division 67, as they are also used to proxy the output of the brokers and market makers. However, the problem with this approach is that UK based dealers operate on exchanges throughout the world (notably the Eurobond market), and as a consequence may not reflect the true balance of activity.
Another issue is that “over-the-counter” (OTC) trading of financial instruments is not conducted through a central market, and is hence very difficult to measure.

The ONS already collect data in this area via the Securities Dealers Inquiry data. This form collects data on:

- profit/Loss from dealing as a principal
- commissions
- interests and dividends
- other income

Whilst the series are relevant the survey is subject to discontinuities and there are conceptual difficulties in deflation. At the time of the last review, the benefit of direct volume monthly exchange data was chosen in preference to the quarterly securities dealers’ data. The survey is under development but the practical issues here will require much work and implementation of improvements is timetabled for Blue Book 2010 at the earliest.

67.13 - Activities auxiliary to financial intermediation not elsewhere classified

This group covers the following:

- independent financial advisers (IFAs) not specialising in insurance or pension funding advice
- mortgage brokers
- bureaux de change, foreign exchange brokers etc.
- hedge funds (on the basis that they are excluded elsewhere)

Financial advisers / Mortgage brokers are companies that exist by earning commission from products they sell on to clients, usually households and businesses. They will include insurance, pensions, endowments, mortgages, and so on. The commission is normally a percentage of the premiums paid by their clients. No data sources are currently available to measure this activity, and this is an area for future investigation.

There is no central foreign exchange market as trades are conducted between banks and brokers. Foreign exchange brokers earn their income by levying a percentage fee on any trades (net spread earnings). The Bank of England publishes a triennial survey of the foreign exchange (forex) market as part of an international survey for the Bank for International Settlements. Data should be split by spot, forward and options. The periodicity makes it unsuitable for quarterly/monthly use.

Hedge funds are currently exempt from regulation and as such are not required to meet disclosure standards. It is estimated that hedge funds could account for up to 6% of total fund management activity in the UK although recent trends are likely to have changed the balance of hedge fund activity somewhat. By definition, it is extremely difficult to derive a volume measure of output for these agents under the current regulatory framework.

The lack of transparency and data in this area makes development of reliable and complete indicators a difficult and prolonged process. A recent attempt to introduce Price Waterhouse Cooper (PWC) and Confederation of British Industry (CBI) joint data from their Financial Services Survey concluded that the data was not suitable for use as a volume indicator for the GDP output series.
67.2 - Activities auxiliary to insurance and pension funding

At present no indicators specific to this industry are used, instead the indicators used to measure insurance and pension funding are used as a proxy. Effectively this is assuming that broking has a fixed relationship with the insurance industry. No data sources are currently available to measure this activity and as such it is difficult to assess the validity of this assumption.

Analysis of output and employment

Having outlined and considered the measurement issues relating to short-term output indicators of financial activity, it is logical to consider their evolution against those of corresponding labour market data.

It is reasonable to expect that output and labour market data will move together, with an associated lag, during a sustained period of growth, or similarly through a prolonged downturn. The lag between the two sets of data might well reflect employers’ perception of the permanency of a change in demand and the decision to either hire or lay-off workers.

This section examines the development in short-term output data and full and part time employment series for the sub sectors of the financial intermediation and insurance and pension funding industries. Analysis of the activities auxiliary to finance will follow at a later stage.

Employment data considerations

The analyses use the lowest level of disaggregation that will support investigation. Labour market data are taken from the LFS, which is a large household survey when considered in aggregate. It should be noted that sample sizes can be somewhat limited at a low sectoral breakdown, though will still be relatively robust for the larger components of the sector. As a consequence of small samples, data extracted at this level of detail can often be observed to be volatile but with no seasonal pattern. Non-seasonally adjusted data are therefore examined at this disaggregated level, although these data are often difficult to interpret in raw form due to a four week sample period affecting the raw data (leading to inconsistent timings across months of differing lengths). Despite difficulties with the rough dataset considered, the LFS is the best comparable series given the detail needed to consider the financial sector at the level in this article.

Output data considerations

In addition to all the measurement issues identified in the first part of this paper, it is important to remember that the short-term output measures used here are in fact, designed to act as proxies for GVA. Low level output (activity) indicators are weighted together by a value-added industrial breakdown of the UK economy. This approach assumes that in the short-run, changes in input (intermediate consumption) volumes move in line with changes in output volumes. This assumption is tested and corrected during the annual supply and use balancing process, but to the extent that it breaks down in recent periods, the growth in output may over or under state the growth in value added, and thus GDP.

General comparison of direct and indirectly measured output for Division 65

There are a number of factors underpinning the developments illustrated in Chart 1. In relation to the directly measured output indicators, whilst the supply of credit has been hit by the credit crisis, non-risk prices, such as arrangement fees for mortgage and loan facilities have increased.

The relative stability in the indirect measure however, reflects a relative stability in the stock of deposits and loans. The stock of loans did not change dramatically though the year, as a result of
restrictions on credit, whilst the stocks of deposits also remained constant as households continued to spend until the latter part of the year.

Given that the GVA data are built up using indicators of type of activity, rather than type of institution, it is not possible to derive separate GVA series for each of the banking, central banking and building societies sub-sectors. Instead, the direct and indirect data sets are weighted together by their share in overall output under National Accounts weights in order to produce a composite index for Division 65. Table 1 shows that the FISIM weight makes up over two-thirds of the overall composite, and the directly measured component (proxied by fees and commissions) one third. So, not surprisingly, the trend and movements in the FISIM series predominate.

This composite series has been used as a proxy for both the banks only and building societies only analyses below. This is necessary but does mean that marked differences in the performance of the sub-sectors may be masked in the composite series.

Chart 1: Output of FISIM and Fees & Commissions: Index (2003=100)
Comparison of output and employment data

Banks

Chart 2: Banks output and employment

The composite output series for banking, building societies and central banking shows a stable and increasing trend for activity throughout the period (see Chart 2). The employment level for banks, although tracking output into 2007 (taking into account the volatility of non-seasonally adjusted data), has since fallen off quite steeply.

Given that employment is falling off as expected, the continued increase in output for the sector as a whole is somewhat surprising. The output measure we are analysing however is for banks, building societies and the central bank, and therefore may not to be representative of the output for the banking sector alone. It is quite possible that a fall in banking output might be offset to some extent by a smaller fall for building societies. Also, it has already been noted that this series is dominated by FISIM, which largely depends on the stock of loans and deposits, which have remained stable.

Both full and part-time employment levels have been substantially affected. The full-time employment level has fallen 4.8 per cent. Part-time employment has fallen more heavily: at the end of 2006 the employment level stood at around 103 thousand; this has fallen 19.6 per cent over the past two years, and now stands at only just over 83 thousand. This is in contrast to the trend for the economy as a whole, which has seen part-time employment increase over the period.

Building societies

Again, the composite output series for banking, building societies and central banking shows a stable and increasing trend for activity throughout the period, reflecting the stability of FISIM output (see Chart 3).
Employment, both full-time and part-time, has been volatile throughout the period but this may be due to the sample sizes. The general trend for full-time employment has been one of slight decline.

Throughout the last decade, part-time employment has seen a general upwards trend, and although this has levelled off slightly it still shows part-time employment increasing. The movement in part-time differs from the pattern in the banking sector, and is more in line with the economy as a whole. This indicates a pattern of substitution from full-time to part-time employment in this industry, throughout the period.

**Chart 3: Building Societies output and employment**

Investment Trusts

Both output and full-time employment have seen fairly steady growth over the period, with an increase in growth towards the end of 2008 (see Chart 4). This could be explained by the fact that, since the onset of the crisis, investment trusts are likely to have moved their funds from riskier assets into risk-free assets. This would have generated a large number of transactions, which consequently would have underpinned the growth in GVA for the sector.

The full-time employment level has fallen over 2008, by around 8.5 percent. Part-time employment has declined at a noticeably faster rate than full-time employment, falling by around 50 percent over 2008 as a whole, perhaps reflecting the lower costs of shedding such labour at a time of overall reduction.
Life Insurance

Both full-time employment and output for life insurance have declined over the period 2000 to 2008 (see Chart 5).

Chart 5: Life Insurance output and employment
Prior to the onset of the crisis there appears to have been a slight decline in the output of the life insurance sector. This is believed to be as a result of reduced take up of such insurance amongst first time home buyers unable to get on to the housing ladder. Recent research by Life Insurance UK highlighted that people were cancelling their life insurance cover in order to save money to weather the recession.

Full employment levels have tended to track the slight decline in output and this is thought to be as a result of the strong competition in the sector (supermarket banks have entered this sector aggressively), which means that prices and costs have needed to be kept under control.

In short, the output indicators for this sector appear to be appropriate in terms of coherence and expectations.

**Non-Life Insurance**

Over the past decade, the output data for non-life insurance has been slightly more volatile than for life insurance and pension funding (see Chart 6). The data does however, show a general upward trend. For the period up to late 2005 the data shows gradual growth. However, quarter four 2005 saw a substantial jump, followed by the same trend of slow growth.

The most significant component of non-life insurance is motor insurance, a necessity for those that drive cars, and therefore the variability in demand, given income is low. This means that during the current economic crisis we would expect to see little change in the level of output for non-life insurers, and any negative change that we do see should be related to an overall weakening in transport demand.

Full-time employment over the whole period has fluctuated about a broadly stable level. Part-time employment has had a general trend of growth over the whole period, with marked growth since the beginning of 2005. Thus the activity indicators for non-life insurance appear to be coherent.

**Chart 6: Non-life Insurance output and employment**
Pension Funding

The output of the pension industry over the past decade can be split into three distinct phases (see Chart 7). The first, from 2000 to mid-2005 was a phase of decline, with around a 20 per cent fall in the index from 2000 quarter one to 2005 quarter three. The second phase is of growth between mid-2005 and late 2006. The final phase is of neither growth nor decline, with the index fluctuating by less than 2 per cent over this period.

The developments in the output activity of the pension funding industry are consistent with a number of factors including both legislative and corporate sector performance. The fluctuations in both employment and output around 2004 can be mainly attributed to the implementation of the Pension Act (2004), and subsequently the Pension Protection Fund in 2005.

The decline in output prior to 2004 is a consequence of lax rules prior to the introduction of these regulations. Since then, the output in pension funding has grown in line with legislative requirements and strong corporate profits, which have both ensured that the “funding gap” has started to close.

Chart 7: Pension Funding output and employment

During times of recession we might expect the output of pension funding to fall in line with employment. To the end of 2008, however, this is not what we have observed. Output of the pension funding industry remained fairly flat through the second half of 2008, with a slight reduction into the 2008Q4. One of the main reasons behind this development could be attributed to the lag between changes in economic output and the labour market. There had been little reduction in the level of employment going into 2008Q4 and therefore there can be little expectation that pension funding output will have been impacted significantly. With large reductions in employment into 2009Q1, it would be reasonable to assume that pension funding output would have fallen similarly.
Based on this conjecture, the activity indicators for pension funding appear to be appropriate in terms of coherence and expectations.

Conclusions

Measuring the activity or output of the financial sector is extremely challenging, both conceptually in how to define a unit of output of insurance or banking services, and practically. These challenges were discussed in the section on the analysis of output and employment, where little coherence between output indicators and labour market data for both the banks and building societies and the investment trusts sectors was observed. Part of the reason behind this lack of coherence can be attributed to measurement issues surrounding the growth in recent years of special purpose vehicles, unregulated institutions such as hedge funds and the shadow banking sector in general.

We should also consider the unadjusted nature of the labour market data used in this preliminary analysis, although the data does cover the whole of the sector whereas the National Accounts aggregates are subject to limitations. These limitations and other financial sector measurement issues are discussed further in Annex B.

ONS has been working with the Bank of England for some time to try to improve both coverage and relevance of the indicators used in the calculation of short-term GDP, and this work continues.

The main development areas currently being pursued are:

- the introduction of indicators for net spread earnings and other income;
- to review the use of the AEI excluding bonuses to deflate fees and commission, and to potentially replace it with PPI and RPI components, and
- to investigate all possible data sources for financial auxiliaries’ including hedge funds
ANNEX B: CORPORATE SECTOR BALANCE SHEETS AND CRISIS TRANSMISSION

Financial Corporations and the Shadow Banking System

In the National Accounts, the financial corporations sector comprises banks, building societies and non-bank financial institutions.

The growth in banks’ balance sheets, along with measurement omissions and shifting scrutiny all played their part in the development and transmission of the financial crisis. Such growth in lending would not have been possible without the emergence of what has become known as the shadow banking system. The shadow banking sector is defined as that part of the financial sector which does not accept deposits and, as such, does not require a license to operate as a bank and consequently is not subject to financial regulation. Shadow banks typically act as intermediaries between investors and borrowers, taking either fees or benefitting from the interest rate spread between what an investor is paid and what is received from a borrower. The high profile entities which comprise the shadow banking system, include hedge funds, SIVs, conduits, money funds, monolines and investment & other non-bank financial institutions. In many cases the sector suffered the consequences of the crisis directly, with the demise of institutions such as Bear Stearns and Lehman Brothers. Further details on these institutions and their activities are given in the Annex.

Figure 1: Accumulation of households total financial liabilities

The expansion in banks’ balance sheets in recent years accompanied not only increased indebtedness of non-financial corporations but also that of the household sector, as illustrated in Figure 1. The
considerable size of household debt has been acknowledged as a contributing factor to the ongoing deepening of the crisis.

A further problem is determining the value of assets held by the financial corporation sector since the onset of the credit crisis. Many of the assets generated by entities in the shadow banking system, such as mortgage backed securities, became increasingly difficult to value as the market collapsed. Consequently, uncertainty over the financial strength of commercial banks increased, which in turn placed downward pressure on bank share prices, further increasing the impact of the crisis. In the absence of reliable market values, there is a danger that balance sheets can be over- or under-valued at nominal value and could therefore present an incorrect representation of the financial strength of the financial corporations account. Issues of asset and liability valuation are therefore an important measurement area.

Private Non Financial Corporations

The measurement omissions relating to sources of finance originating from the shadow banking system also affect the PNFC sector balance sheet, as the counterparty to the financial corporations balance sheet.

Under-recording of the lending of financial corporations will be counterparty by under-recording of borrowing in other sectors. In addition, there is the issue of the contingent risk posed to the PNFC balance sheet from pensions. With the introduction of new legislation to address the issue of funding gaps, declining equity markets, interest and inflation rates and increasing longevity, the risks around pension liabilities on the PNFC balance sheet are increasing. Measuring and monitoring these risks will continue to pose a challenge.

Funding of PNFCs

Analysis undertaken internally by ONS in 2008 on the financial condition of the PNFC sector explored issues surrounding the measurement of PNFC liabilities.

Figure 2: Private Non-Financial Corporations’ Net Lending/borrowing, £million

This focused on a number of aspects, beginning with an examination of the net lending and borrowing position, as shown in Figure 2. This illustrated that in the recent past the sector has been a net lender with existing current and capital expenditure being outstripped by receipts.
The study progressed to examine how the PNFC sector had used its surpluses and deficits to purchase financial assets and liabilities (see Figure 3). What has become clear is that the acquisition of financial assets has generally been in excess of liabilities, confirming that the net acquisition of assets has been funded by the sector’s net lending position as illustrated in Figure 2. Despite this, firms have continued to amass liabilities during prosperous periods, with little reduction in their stock of debt. Examining the PNFC balance sheet reveals that, as of the second quarter of 2007, the accumulation of total liabilities had increased at a faster rate than total assets to reach a historic high of nearly £3.7 trillion. As a percentage of GDP however, the most recent peak is not as high as that observed following the surge in liabilities following the high growth in equity valuations prior to the stock exchange crash in 2001.

Further analysis on the asset side reveals that firms had built up deposits with UK and rest of world monetary financial institutions (MFIs), purchased shares and other equity and, particularly in 2005 and 2006, made a number of loans to UK residents. On the liability side, firms had greatly increased their borrowing from both UK and foreign MFIs as illustrated in Figure 4.
One possible explanation for this could relate to loans sustaining private equity transactions (investment of differing forms, by institutional investors, in operating companies not publicly traded on a stock exchange). This area is difficult to measure however, and is an issue that requires further investigation to obtain a greater understanding of PNFCs liabilities and how gearing/leverage is structured. Another area of PNFC liability funding that requires further investigation is the borrowing connected to the shadow banking system, i.e. from hedge funds and venture capital.

This picture of PNFC liabilities is not complete without considering the total balance sheet position of the PNFC sector as illustrated in Figure 5. It can be seen here that total liabilities have been growing in excess of total assets for some time. Part of this growth can be attributed to the increased borrowing from UK and foreign MFIs as discussed. This however is not the entire story, since the balance sheet position has been further impacted by the growth of unquoted equity, including both foreign direct investment and again private equity. The balance sheet picture is also heavily influenced by price movements and exchange rate fluctuations, which can consequently distort the view of the growth assets and liabilities on the balance sheet.

In short, analysis of net acquisition of financial assets and liabilities will not result in the balance sheet of the PNFC sector. Further investigation into PNFC liabilities arising from the shadow banking system, unquoted equity and the influence of price and exchange rate movements will bring us closer to this position.
Notwithstanding other sources of finance therefore, it is clear that the financial health of the sector was perhaps not as strong as might be suggested by the sectors’ favourable profitability position during the last 20 years. (see Figure 6).

An alternative way of examining the liability position of the PNFC sector is via gearing ratios. ONS analysis has examined a range of ratios including:
- debt as a percentage of gross disposable income
- debt as a percentage of GDP,
M4 lending to PNFCs as a percentage of GDP

the income and capital ratios

In general each of these ratios indicated that gearing has increased for the PNFC sector since 2001, whether accounting for equity or not. These ratios, coupled with estimates of omitted liabilities from hedge funds from the Bank of England, reveal a weaker financial position for the sector, prior to the economic crisis, than shown in the National Accounts balance sheets.

ONS’ conclusions, coupled with some identified sector account data issues, present two distinct development opportunities for PNFC data analysis. First is to update and share this analysis with stakeholders and second is to work with the same to cover the measurement of the omitted liabilities.

The Financial Corporations Account in the UK National Accounts

As a primary step in addressing the measurement issues surrounding the financial corporations account, ONS has undertaken research into the classification and coverage of financial sector activity, with a view to identifying obvious gaps and addressing how to fill them.

This work looks into the classification of financial corporations and compares UK publications against the international guidelines in SNA 1993 and ESA 95, and in the revised SNA (SNA 2008). These guidelines leave room for the reporting authority to determine the level of reporting detail, according to the complexity of the sector reported and the needs of the data for policy making, which in the case of the UK are clearly significant. Comparisons between SNA 1993 and 2008 are made against the three major publications which cover financial corporations’ activity, these being UK Economic Accounts, the Blue Book and the monthly Financial Statistics.

The research concludes that:

- published UK National Accounts cover a large proportion of financial activity;
- they do not provide detailed data at the sub-sector and sub-position level, which would contribute to the resolution of some transparency issues, as well as providing data to map major trends in financial activity. In particular, structured financial products, such as derivatives, private equity and venture capital are not well covered;
- active coordination with the FSA, Bank of England and HM Treasury, among others, will be essential in meeting these challenges.

In light of this gap analysis and previous internal reviews of the financial corporations account, a number of key work streams have been identified to improve the quality of the data. This should also lead to better coherence between the income and production measures of GDP, and more up to date weighting for individual industries within the financial corporations sector. The work will consist of:

- improving estimates of gross trading profits for fund management and asset finance, which are thought to have been underestimated since the cessation of the fund management inquiry in 2000. It is acknowledged that the measurement of asset finance has been limited, given a lack of available resource to ratify data generated via the asset finance inquiry.
- updating the weights for the output and GVA of financial corporations.
- continuing development of a top-to-bottom account for banks,
- improving the validation of finance leasing data,
- improving data on bonds liabilities in the financial account across all sectors; and
• incorporating derivatives data into the National Accounts. ONS has already begun to address this and plans to incorporate some derivative data in Blue Book 2010. A review of bonds transactions and holdings is also underway, focusing on the reconciliation of data between the income and capital account and measures in the financial account.

ONS runs a series of quarterly surveys collecting financial transactions data from financial corporations (other than banks and building societies) such as insurance companies, pensions funds, investment institutions and securities dealers. There are a number of issues with these surveys, which have been evident for some time:

• the coverage of the surveys is incomplete;
• the data requested are inconsistent;
• the samples are generally small

As a result, the data are not considered very reliable.

Annual balance sheet data are collected via separate surveys, but not from securities dealers. Quarterly balance sheet estimates are estimated from the quarterly flow data. Some investment vehicles such as hedge funds and private equity funds are not covered at all.

The financial balance sheets of PNFCs are covered by a quarterly survey, but collect much more data on assets than liabilities.

ONS is developing a strategy to improve the coverage and data quality of all these surveys, making full use of administrative data. The work to develop a new strategy will include:

• investigating new registers to improve survey coverage of the financial sector
• improving reconciliation systems between quarterly and annual data
• assessing the potential for administrative data, especially regulatory data from the FSA
• considering the financial surveys done in other countries (for example, Ireland) where balance sheet, flows and revaluation data are collected from reporters together on one quarterly survey form
• developing and testing a single survey form to collect financial data from all reporters.

Conclusion

As outlined, the ONS will seek to address a number of measurement omissions and data quality issues relating to the financial corporations account internally. There are a number of areas however, where our partners and stakeholders are well positioned, both in terms of data and resource, to assist us with closing the measurement gaps discussed. In particular, we would like to engage to address the measurement issues around special purpose vehicles, hedge funds and private equity.

Developing estimates of these activities will be important both in terms of measuring value within the National Accounts and assessing risks relating to both the shadow banking system and the PNFC sector. As well as assessing priority needs, partnership working on these issues will enable capacity and understanding to be created to address future financial innovations, as and when they arise.
ANNEX C: IMPROVING MEASUREMENT OF HOUSEHOLD SAVINGS AND WEALTH

Household income, consumption and savings

In the household sector of the National Accounts, income and consumption expenditure of households are estimated directly from data sources such as Her Majesty’s Revenue and Customs (HMRC) Pay As You Earn data, the Annual Business Inquiry, the Living Costs and Food Survey (LCFS) and the Retail Sales Inquiry (RSI). However, estimates of household savings are not calculated directly. Instead, they are calculated as household resources minus final household consumption expenditure. (Household resources are the sum of gross disposable household income and the adjustment for the change in net equity of households in pension funds). Thus, the estimates of household savings in the National Accounts are calculated as a ‘residual’ – the difference between disposable income and final consumption expenditure. The quality of the savings estimates is dependent on the quality of the components used to calculate the residual. In addition, data for these components in the latest two or three quarters are always liable to revision.

Despite the indirect method of calculating household savings, they did act as an early indicator of problems looming in the economy in the run-up to the 2008 financial crisis. The indication came in the form of the household saving ratio, which is household savings as a percentage of total household resources. The household saving ratio increases if the household spends less or has more resources available. It decreases if the household spends more as a percentage of its resources. This can be done by borrowing (increasing debt) or drawing down on assets (for example, households withdrawing equity from their houses), allowing the household to increase consumption without increasing income, thus producing a decline in the saving ratio.

During the last decade, the UK has seen big increases in household spending relative to total resources, and the saving ratio fell to 2.2% in 2007 and 2.0% in 2008 (see Figure 1). The fall in the saving ratio since the mid-1990s probably reflects growth in household borrowing to finance personal consumption and property purchases during the long run of economic prosperity and financial diversification leading up to the 2008 financial crisis.
Figure 1: Household saving ratio: Percentages

However, there are a number of factors which can cause households to spend more and save less. In the UK, strong economic growth, low unemployment, low inflation, easy access to credit at low interest rates and strong house prices all contributed to the spending boom. Saving for the future became less of a necessity for many people as their assets were increasing to cover additional expenditure, and borrowing more money at low interest rates was increasingly easy. The declining saving ratio could be seen as an early indicator of problems in the economy, as it suggested unsustainable levels of household consumption financed primarily by increasing debt. Households were vulnerable to a sharp reduction in the availability of cheap credit and falling house prices. When the financial crisis hit in 2008, this vulnerability became a real weakness, and households reacted by reining in expenditure, which contributed to the economic downturn.

However, using the saving ratio to predict a crisis in the UK economy is difficult because National Accounts data has limitations when it comes to economic analysis. A key weakness of the National Accounts definition of the household sector is the inability to separate the ‘pure’ household from the self-employed person or small business. While it can be argued that the two are inextricably linked, it should also be noted that economic conditions and policies will have a differing impact on ‘pure’ households as compared with small business units.

Household sector balance sheets

Gross household wealth is the value of accumulated assets. Net household wealth is the value of accumulated assets minus the value of accumulated liabilities. In the National Accounts, net wealth is referred to as net worth. The main household sector assets are financial assets (e.g. currency and deposits, shares and other equity, and net equity in life assurance and pension funds) and non-financial assets (mainly residential buildings). The main liabilities of the household sector are loans secured on buildings (mainly mortgages).
The National Accounts balance sheets are produced quarterly and annually, and they include the combined household and NPISH sector. For many transaction lines, such as pensions or life assurance, the household sector has no source of data and the value which is allocated is a counterparty of an entry for another sector or a residual after the data for other sectors have been subtracted from an estimated total. For example, the estimate for net equity in life assurance and pension funds – in financial assets – is based on the value of assets held by insurance companies and pension funds themselves, which is recorded in the corporate sector. For this reason, revisions can often be seen in the household data when a counterparty sector revises data.

Work is ongoing within ONS to identify new sources of household data to be used within the National Accounts and the first area likely to report findings during 2010 will be the transaction line for unquoted shares. Unquoted shares are those shares which are not listed on a stock exchange, and are primarily held by owners of small businesses as part of the household sector. Unquoted shares are very difficult to put a value on but a number of methods and data sources are currently been investigated which will hopefully lead to a data source for the household element rather than the current residual approach.

The information on household sector assets and liabilities can be used to look at household wealth, and also to track unusual changes – such as sharp increases in household debt – which help to indicate potential imbalances in the run-up to a crisis.

Household debt

Figure 2: Household sector financial liabilities (debt): percentage of GDP

Figure 2 shows that since the mid-1990s households have experienced big increases in debt as a percentage of GDP in the form of short-term loans, mainly consumer credit, and long-term loans, mainly mortgages. While there is a need to produce aggregate measures of household debt, there is also a clear user demand for breakdowns by gender, age, income group or region. Although, National Accounts data sources cannot support such analyses at present, the ONS is currently engaged in a joint project with Bristol University to provide a more comprehensive picture of the household sector.

Pensions in household wealth

One of the key financial assets of the household sector is net equity in life assurance and pension funds. In 2007 this category made up over half of households’ total financial assets, and 29 per cent of their
net worth (defined as household financial assets minus household financial liabilities plus household non-financial assets). Figure 3 shows households’ net equity in life assurance and pension funds as a percentage of GDP. It rose rapidly for most of the 1990s, but dropped back sharply with the falls in equity values in the early 2000s. As a proportion of GDP, household assets in life assurance and pension funds are still below the 1999 peak of £1.6 trillion (176 per cent of GDP) By 2007, they were 156 per cent of GDP (£2.2 trillion).

Figure 3: Household assets in life assurance and pension fund reserves: percentage of GDP

The data used to compile the series net equity in life assurance and pension funds in the National Accounts are reported on a quarterly basis, and are considered reliable because they come from ONS’s series Investment by Insurance Companies, Pension Funds and Trusts (MQ5), which takes information from the accounts of pension providers. However, it is not possible to separately identify household pension assets in the National Accounts, as many pensions are provided by insurance companies, which do not report their pensions business separately from insurance business. It should be noted that the methodology used to construct the National Accounts means that the aggregate liability of insurance companies and pension funds (calculated from their total liabilities less any identified liabilities such as borrowing, and appearing in the corporate sector accounts) is equal to the market value of their net assets, but not necessarily equal to the actuarial value of their pension liabilities. There is therefore no official estimate of the pension fund ‘shortfall’ that occurs where aggregate liabilities of defined benefit pension schemes (based on actuarial values) are higher than their assets.

In addition, the pension wealth shown in the National Accounts is only for funded pensions, which consist of private sector occupational pension schemes, employer-sponsored personal pensions and the local government pension scheme for local authority employees. The National Accounts do not show assets or liabilities of unfunded or ‘pay as you go’ pension schemes covering state pensions and public service pensions for the civil service, armed forces, National Health Service (NHS), teachers, police and fire fighters. This is because there are no ‘funds’ to record as liabilities.
However, work is currently being undertaken on a new revision of the System of National Accounts (SNA) to replace SNA93. It is anticipated that the new revision will include as liabilities, estimates of the future pension benefits payable by state social security schemes and unfunded public sector occupational pension schemes. However, it is not clear on what basis such liabilities would be estimated. The European System of Accounts (ESA) 1995 is also undergoing revision, and a separate decision will be made as to the relevance and feasibility of recording such liabilities in the revised ESA, and whether they would appear in the core ESA-based National Accounts or – as is more likely – in a supplementary table. The UK will implement the revised ESA in 2014.

**Improving measures using survey sources**

HMRC has published statistics on the distribution of personal wealth held by residents of the UK since 1962. These statistics are based primarily on the “estates multiplier” method. Broadly speaking, they make use of the information about individuals’ assets revealed from the probate or Inheritance Tax process to provide estimates of the wealth held by the living. There are serious limitations to this method, in particular the exclusion of pension wealth. Problems with the methodology in recent years mean that the latest data available relate to 2003.

The need for improved measures of wealth has been noted for some time. This has resulted in the creation of a new survey, the Household Assets Survey (HAS). The HAS was specifically designed to produce measures of household and personal wealth. The HAS is a longitudinal sample of 32,000 households surveyed over a period of two years. The first wave of collection covers the period July 2006 to June 2008. Wave II, covering the period July 2008 to June 2010, is currently in the field. The survey collects information on household assets and liabilities and is designed to produce estimates of household wealth, comprising property, financial, physical and pension wealth.

The first main results covering the period July 2006 to June 2008 (Wave I) will be available towards the end of 2009. Results of Wave II, covering the period July 2008 to June 2010, will be available in 2011. In the interests of timeliness, the analysis will be primary in nature, presenting a summary of the data, but without comparisons with other sources in the text. Such comparisons, however, will be an important aspect of the quality assurance of the dataset. The 2009 report will be the mechanism for placing the data into the public domain, and will be the springboard for collaborators to work with the data on their own detailed secondary analyses. Further analysis of the data will be done after publication of the 2009 report that will look at more detailed aspects of the data, for instance work is planned with HMRC to look at how better estimates of wealth can be produced by combining HAS and HMRC data.

The 2009 main report will include analysis of the assets, liabilities and net wealth of households. There will be chapters looking in detail at household property wealth (including mortgages), household financial wealth (including formal and informal savings, children’s assets), private pensions (including current and deferred pensions, modelling of accrued pension entitlements, excluding state pensions) and household physical wealth such as household goods and collectibles. Each chapter will include distributional properties of net wealth by different social and demographic characteristics such as age, socio-economic classification and place of residence. These analyses will be compared with household sector information used in the National Accounts and will be used to improve National Accounts measures of saving and wealth.

There will also be a chapter looking at household debt, particularly non-mortgage borrowing and arrears. Non-mortgage borrowing is defined as the use of any credit or store cards that are not settled in full each month, overdrafts and all forms of fixed-term loans, including personal loans, hire purchase agreements and mail order accounts. There will also be a chapter on people’s attitudes to saving, borrowing and retirement. In particular there is interest in how these relate to each other (such as attitudes...
towards debt and towards savings, attitudes to pensions and attitudes to savings, risk, etc.), as well as how the attitudes relate to actual behaviours.

The survey also includes a follow-up survey which looks at indebted households in more detail, based on a sub-sample of achieved households from Wave I. The follow-up survey started in October 2007, so will cover eligible households from HAS which were interviewed between October 2006 and June 2008. These households form a population that may be described as households at risk of financial exclusion.
ANNEX D: THE PUBLIC SECTOR BALANCE SHEET

Sectorisation and asset & liability detail

Sectoral classification of the public sector banks

RBS and Lloyds are financial services groups, each having hundreds of subsidiary companies. These subsidiaries are classified in many sub-sectors of the economy, including monetary financial institutions (MFIs), other financial institutions (for example securities dealers), insurance companies and non-financial corporations (NFCs). Their classification to the public sector, along with Northern Rock and Bradford & Bingley, has caused some confusion about how this is reflected in the National Accounts, and the read-across to the public sector finances.

In the National Accounts, the sub-sectoral breakdown is by institutional sector (for example, MFIs, insurance companies and NFCs etc). The split into public and private sector is a secondary classification variable; it is not currently a legal requirement.

The NFC sector is presently the only one in the UK National Accounts that has a public/private split – the public part is called public corporations and, in practice, includes a few minor financial corporations. The public corporations sector in the National Accounts does not and will not include public sector banks or their financial subsidiaries: these continue to be classified to their primary National Accounts sectors. This means, for instance, that data for Northern Rock Bank is included within the overall MFI sector.

The situation is different for the public sector finances. Here, the public corporations sector includes Bank of England, Northern Rock, Bradford & Bingley and their UK subsidiaries, as well as public NFCs (although in some presentations data for the public sector banks are shown separately from other public corporations). Data for Lloyds and RBS will be added into public corporations for the public sector finances as soon as is practicable, although they will remain classified to their existing sectors for the National Accounts. There are no plans to compile separate top-to-bottom accounts for each sub-sector of the National Accounts split by public/private corporations.

More detailed analyses of the public sector balance sheet

Before the classification to the public sector of Northern Rock and Bradford & Bingley, it was possible to compile a full balance sheet for the public sector from the corresponding balance sheets for general government, public (non-financial) corporations and public financial corporations. Currently, it is not possible to do this because of concerns that commercially sensitive data may be disclosed by the publication of a detailed balance sheet for public financial corporations comprising a small number of banks.

These disclosure concerns exist because the difference in coverage of public corporations in the public sector finances and National Accounts means that, in principle, it is possible to deduce the public financial corporations’ element. This has severely limited the statistics that can be published in the public sector finances for public corporations including financial corporations. Indeed, the only balance sheet information that is used is the banks’ contribution to public sector net debt.
With the further addition to the public sector of RBS and Lloyds Banking Group, it is anticipated that these disclosure concerns will lessen, and that it will be possible to start publishing more detailed information relating to transactions and balance sheet levels for financial assets and liabilities of public financial corporations. The precise level of detail will be determined in discussions which are on-going.

**Measures of public debt**

**Introduction**

A key measure of the health of the public sector finances is the level of debt. There are several possible ways of measuring this. The most widely reported is public sector net debt, which is published monthly by ONS and HM Treasury and used domestically as part of the government’s fiscal policy framework. However, there are a number of other measures of debt that are published by ONS or that can be derived from published figures.

This section explains how these, and other measures, are defined and highlights factors to be considered when interpreting the results. Particular attention is given to PSND because of the policy focus on it.

**Measures of debt**

There are several dimensions to measuring government and public sector debt:

- the sectors covered
- whether debt is measured consolidated or unconsolidated
- whether debt is measured gross or net of assets
- which liabilities or assets are included
- the basis of valuation

Each of these is considered in turn below. The choice about which is the most appropriate depends on the particular need of the analyst.

The public sector comprises general government (central government and local government) and public corporations. Measures of debt are available for each of the sub-sectors, for general government, and for the public sector as a whole.

Consolidated measures of government debt remove central government holdings of local government debt, and vice versa. Similarly, consolidation for public sector measures removes all intra-public sector holdings of public sector debt.

Measures of debt are gross if they are calculated only from financial liabilities, or net if assets are fully or partially subtracted. Gross measures show the accumulated stock of borrowing. Some of this borrowing may have been incurred to purchase assets. Net measures of debt deduct the current value of assets held. These assets may be financial, such as lending to businesses, or non-financial, such as roads, schools and hospitals.

Commonly used net aggregates are net worth – total assets (financial plus non-financial) less total liabilities; and net financial assets – financial assets less financial liabilities.
The liabilities included in estimates of debt can cover some or all liabilities recognised by the National Accounts system. Similarly, net measures of debt may cover all assets (both financial and non-financial) or be limited to certain asset classes. Public sector net debt, as published in the Public Sector Finances Statistical Bulletin, includes most liabilities, but only “liquid” financial assets.

In National Accounts based debt measures there are two options for valuing assets and liabilities – at nominal value or market value. For some classes of assets and liabilities, the two valuation bases are the same; examples are bank deposits and lending (although commercial accounting values loans at fair value). For others, where assets are traded and there is a market, such as government bonds, the two can differ. In the latter case, the nominal value shows the cost to the issuer of redeeming the bond when it matures; whereas the market value shows the current cost of going into the market to redeem the bond.

**Domestic measures of debt**

The main measures of debt published in the UK are:

- PSND, published monthly in the Public Sector Finances Statistical Bulletin. Measured at nominal values, consolidated, and calculated as liabilities less liquid assets.
- Public sector net debt excluding the effect of financial sector interventions (PSNDX). Similar to PSND but excluding the effect of classifying Northern Rock and Bradford & Bingley to the public sector, along with the net cost of other interventions;
- General government consolidated gross debt as calculated for the Maastricht Treaty’s Excessive Deficit Procedure. Measured at nominal values for the general government sector.
- General government unconsolidated gross liabilities at market values, calculated in the National Accounts and published quarterly;
- General government net financial liabilities at market values, calculated in the National Accounts and published quarterly;
- General government net worth at market values, calculated in the National Accounts, and published annually.

Chart 1 shows how the first five of these measures compare at the end of December 2008. General government net worth is not shown in the chart but the most recent figures for end-2007 show total assets (including non-financial assets) exceeding government liabilities by around £350 billion.

**Chart 1: Measures of debt at Dec 2008 (nominal values except where stated; £billion)**
The chart unsurprisingly shows that general government’s gross unconsolidated financial liabilities at market prices are substantially higher than any of the other measures, but that if government’s assets holdings are deducted the level of debt nearly halves, to become the lowest measure.

The effect of the financial sector interventions on the level of PSND can be clearly seen. At the end of December 2008, the effect of the classification to the public sector of, first, Northern Rock and subsequently Bradford & Bingley had added around £130 billion to PSND.

The chart also shows that general government gross liabilities at market values are higher than the Excessive Deficit Procedure measure at nominal values. In part, this is due to government bonds trading at values in excess of their nominal value. It also reflects differences in coverage, with the Excessive Deficit Procedure measure excluding accounts payable and differences due to the effect of consolidation.

**International comparisons**

International comparisons of debt are published by Eurostat, the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD). They are usually based on central government or general government and are expressed as a percentage of GDP.

Eurostat’s data are based on the Excessive Deficit Procedure returns made by each Member State in the EU and relate to general government consolidated gross debt. The position at the end of December 2007 is shown in Chart 2. It can be seen that the UK, with debt at 44 per cent of GDP, is about midway in the ranking of countries and below the EU average. Comparable figures for 2008 are available for the UK and show debt at 52 per cent of GDP, but are not yet available for other countries.

IMF and OECD measures of debt are based on National Accounts aggregates. OECD data for general government (not presented here) also show the UK ranking towards the middle, with gross financial liabilities a little below average and net liabilities a little above average. The OECD also present data for central government but care should be taken when using this as the remit of central and lower levels of government can vary between countries – for instance, the regional level of government in Germany has much greater powers than in the UK.
PSND

Measures of public sector debt have a long history in the UK. The current definition has been in use since the mid-1960s, and since 1997 has been a key statistic for assessing performance against the Government’s fiscal rules. When the current administration came into power, it established two fiscal
rules, including the sustainable investment rule which required that “public sector net debt as a proportion of GDP will be held over the economic cycle at a stable and prudent level. Other things being equal, net debt will be maintained below 40 per cent of GDP over the economic cycle.”

The Pre-Budget Report 2008 (PBR 2008) explained that:

“the Government will depart temporarily from the fiscal rules until the global shocks have worked their way through the economy in full. Consistent with the Code for Fiscal Stability, the Government is setting a temporary operating rule: to set policies to improve the cyclically-adjusted current budget each year, once the economy emerges from the downturn, so it reaches balance and debt is falling as a proportion of GDP once the global shocks have worked their way through the economy in full.”

The PBR 2008 also stated that “while the public sector fiscal aggregates continue to be affected by interventions in the financial sector the Government will report on PSND both including and excluding the impact of those interventions.” The Economic and Fiscal Strategy Report 2009 (EFSR2009) published on 22 April 2009 (page 41) provided further clarification:

“To ensure transparency in reporting on the impact of financial sector interventions on the public finances, the Government will publish information on three different bases:

- including financial sector interventions on a National Accounts basis: These measures reflect the treatment of financial sector interventions as determined by the National Accounts, including temporary and exceptional effects from, for example, the inclusion of the balance sheets and operations of banks classified to the public sector;
- excluding liabilities and unrealised losses from financial sector interventions: These measures remove the temporary effects of financial sector interventions on the fiscal aggregates. As losses are realised for central government, and so can be reliably included in the fiscal projections, they will score in these measures; and
- including unrealised losses on financial sector interventions: These measures include the anticipated future loss stemming from the Government’s financial sector interventions, and so are better measures of the sustainability of the medium-term fiscal position than those on the other two measurement bases. They remove the temporary effects of financial sector interventions on the fiscal aggregates.”

Projections including a provisional estimate of future losses, that is, on the third basis, were shown in the EFSR both for net borrowing and for net debt. In the monthly Public Sector Finance Statistical Bulletin net borrowing is shown only on the first of these bases and net debt only on the first two.

As described previously, PSND is defined as liabilities less liquid assets. The liabilities that contribute to PSND have traditionally been relatively well defined, in comparison to the assets, hinging on the interpretation of what constitutes a liquid financial asset.

The expansion of the public sector to include public sector bank groups has prompted a need to define more clearly which classes of assets and liabilities are included in the calculation of PSND. The outcome of the resulting work, by a group comprising representatives from ONS, HM Treasury and Communities and Local Government, is described in the following sections.
Liquid assets - concepts

The starting point for defining which assets should count in the calculation of PSND is to consider what is meant by liquid assets. Conceptually, a liquid asset can be thought of as one that is realisable at short notice without loss. This involves at least three main considerations, which are interrelated:

- **capital certainty**: whether the value of an asset is likely to change into the future. Factors that can influence this include:
  - the credit-worthiness of the issuer: as a rule, debt issued by governments will be more certain of repayment than private corporations' debt;
  - the residual maturity of the asset: the shorter the time to the redemption date, the greater the certainty the debt will be repaid. In practice, information on residual maturity can be difficult to collect.

- **time**: how quickly an asset can be disposed of (contrast a house with a treasury bill, or a timed deposit account)

- **the market**: note that conditions in the market might change and affect capital certainty and the time taken for an asset to be disposed of. For instance, the collapse in the market for residential mortgage backed securities has reduced the capital value of the assets and means that asset holders cannot realise their investments.

Using these criteria, assets can be ranked according to a spectrum of liquidity, the dividing line between liquid and illiquid being in some sense arbitrary. For instance:

<table>
<thead>
<tr>
<th>Notes and coins</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank deposits</td>
<td></td>
</tr>
<tr>
<td>Treasury bills</td>
<td></td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td></td>
</tr>
<tr>
<td>Government bonds</td>
<td></td>
</tr>
<tr>
<td>Short term Commercial paper</td>
<td></td>
</tr>
<tr>
<td>Shares</td>
<td></td>
</tr>
<tr>
<td>Corporate bonds</td>
<td></td>
</tr>
<tr>
<td>Lending</td>
<td></td>
</tr>
<tr>
<td>Collateralised debt obligations (CDOs)</td>
<td>illiquid</td>
</tr>
</tbody>
</table>

In this ranking, the assets at the top of the list clearly meet all three criteria for liquidity. This is not necessarily the case for those towards the bottom. For instance, loans are not marketable and cannot be readily realised (the borrower cannot be made to repay the loan). The exception to this is short-term inter-bank lending which is recorded as bank deposits. In the case of quoted shares, there is usually a market, but their value (capital certainty) cannot be guaranteed.

Liquid assets – in practice

As noted above, bank and building society deposits, and notes and coins are clearly liquid. Other classes of assets that are judged to be liquid are public sector short-term holdings of private sector and rest of the world securities, where short-term is defined as those assets with an original maturity of up to one year. (Conceptually, residual maturity may be better but this is difficult to obtain in practice.)
Because PSND is a consolidated measure, assets that are liabilities of other public sector bodies are also deducted when calculating net debt for the public sector as a whole.

A further class of assets are also considered to be liquid. In general, liquidity is an attribute of the asset and not of the holder. The exception to this is assets held by central government funds involved in debt and reserves management, in particular the official reserves and the debt management office (DMO), and assets held by the Bank of England.

The official reserves include the Government’s holdings of gold, special drawing rights and foreign currency securities. These assets need to be highly liquid so that they can be made available quickly for intervention purposes (or other permitted uses) if necessary. By convention, therefore, securities that form part of the official reserves are treated as liquid assets when measuring net debt, regardless of their original maturity.

The DMO’s role includes making arrangements for funding and for placing central government’s net cash positions, to ensure that sufficient funds are always available to meet any net daily cash shortfall and, on any day when there is a net cash surplus, to ensure this is used to best advantage.

Assets held by the Bank of England (including long-term securities) are also treated as liquid, reflecting the Bank’s role in the money markets. In the particular case of long-term securities, which are not normally treated as liquid assets, the Bank keep them as reserves that can be sold at any time or are actively traded assets (mainly foreign bonds).

**Financial instruments counting towards net debt**

Table 1 summarises the assets and liabilities counting towards PSND, classified according to ESA1995 financial instruments

<table>
<thead>
<tr>
<th>ESA code</th>
<th>Bank of England, Official Reserves, Debt Management Agency</th>
<th>Other public sector bodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.1</td>
<td>Monetary gold and SDRs*</td>
<td>X</td>
</tr>
<tr>
<td>F.21</td>
<td>Currency</td>
<td>X</td>
</tr>
<tr>
<td>F.22</td>
<td>Transferable deposits</td>
<td>X</td>
</tr>
<tr>
<td>F.29</td>
<td>Other deposits**</td>
<td>X</td>
</tr>
<tr>
<td>F.331</td>
<td>Short term money market instruments</td>
<td>X</td>
</tr>
<tr>
<td>F.332</td>
<td>Bonds</td>
<td>X</td>
</tr>
<tr>
<td>F.34</td>
<td>Financial derivatives</td>
<td>X</td>
</tr>
<tr>
<td>F.4</td>
<td>Lending</td>
<td>X</td>
</tr>
<tr>
<td>F.5</td>
<td>Shares</td>
<td>X</td>
</tr>
<tr>
<td>F.6</td>
<td>Insurance technical reserves</td>
<td>X</td>
</tr>
<tr>
<td>F.7</td>
<td>Accounts receivable/payable</td>
<td>X</td>
</tr>
</tbody>
</table>

* Special Drawing Rights

** Short-term lending of up to a year between monetary financial institutions (MFI) is classified as deposits, as are reverse repos with monetary financial institutions, and investments in money market funds
Specific issues

The work on the technical definition of PSND considered a number of specific issues that are described below.

Recording of derivatives

The recording of derivatives has not been a major concern until recently because they have not been widely used by public sector bodies. The inclusion of banks within the public sector changes this. For instance, RBS’s latest publicly available results show derivatives with values approaching £500bn on both sides of the balance sheet.

International guidance (ESA 1995 and SNA 1993) recommends that derivatives should be treated as financial assets. Also, Eurostat’s Manual of Government Debt and Deficit notes that derivatives do not have a nominal value identical to that of other debt instruments. They also have limited capital certainty. For these reasons, it has been decided that they should be excluded from the calculation of net debt. The exceptions to this are the official reserves and the Bank of England’s holdings of derivatives, which are recorded as assets, reflecting the two organisations’ roles in managing liquidity operations.

Insurance companies

The classification of RBS and Lloyds to the public sector also brings their subsidiaries into the public sector, including insurance companies. This raises the question of how insurance companies’ liabilities and assets should be treated in the calculation of the public sector net cash requirement (PSNCR) and net debt.

The vast majority of insurance companies’ liabilities are their technical reserves. This represents their liabilities to policy holders in the form of prepayments of premiums, and reserves against outstanding claims; the latter representing the present value of the amounts expected to be paid out in settlement of claims. It has been decided that insurance technical reserves should not count towards net debt on the grounds that:

- for other public sector bodies, credits such as prepayments do not count towards public sector net debt;
- reserves against outstanding claims are very different in nature to other liabilities that currently count towards net debt, in that they are an assessment of future liabilities, unlike bank borrowing or debt securities, which represent current liabilities.

It has also been decided that insurance companies’ assets should not count towards net debt. To do so, would distort net debt as the corresponding liabilities are not included.

Externally Managed Funds

Local authorities place surplus funds or reserves with external fund managers. There are two types of funds – money market funds and other managed funds. The treatment of these funds was last considered in 1993, when it was concluded that both should be treated in full as liquid assets. This was primarily on the grounds that it was not possible to “look through” the funds to see where the fund manager had actually placed them; and that local authorities viewed these funds as essentially being liquid assets.

However, while there is still no asset breakdown of money market funds (they are treated as F.2 deposits in the National Accounts), a breakdown of the underlying assets is available for other managed funds and is used for their recording in the National Accounts. It has been decided that:
money market funds should continue to be treated as liquid assets;

for other externally managed funds, the characteristics of the underlying assets should be used to determine which are liquid. This approach will also be applied more widely to other managed funds, such as those held by the Nuclear Liabilities Fund.

**Interpreting PSND**

The level of PSND is published monthly in the Public Sector Finances Statistical Bulletin, while net debt excluding financial sector interventions is published quarterly. In the period up to September 2007, before the classification of Northern Rock to the public sector, the level of PSND largely reflected central government’s net debt, as shown in Table 2.

<table>
<thead>
<tr>
<th>Table 2: Breakdown of public sector net debt: September 2007 (£bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central government debt, net of holdings by central government and public corporations</td>
</tr>
<tr>
<td>Local government debt, net of holdings by central government and public corporations</td>
</tr>
<tr>
<td>Public corporations debt, net of holdings by central government and local government</td>
</tr>
<tr>
<td>Central government liquid assets</td>
</tr>
<tr>
<td>Local government liquid assets</td>
</tr>
<tr>
<td>Public corporations liquid assets</td>
</tr>
<tr>
<td>Bank of England net debt</td>
</tr>
<tr>
<td>Public sector net debt</td>
</tr>
</tbody>
</table>

This situation has started to change. By the end of December 2008, the classification to the public sector of, first, Northern Rock and subsequently Bradford & Bingley had added around £130 billion to PSND.

When the Lloyds Banking Group and RBS are included in the public sector finances, ONS has estimated that this will add an additional £1-1½ trillion to PSND.

However, this statistic needs to be treated with caution. The way in which PSND is defined means that illiquid assets held by these banks – in the form of lending to businesses; for mortgages and holdings of corporate bonds - are not taken into account. This is important because the banks’ liabilities are generally matched by their assets. What PSND shows is the extent to which the public sector’s liabilities are matched by assets which can be realised quickly.

The effect on PSND of classifying these banks to the public sector should not be interpreted as meaning that the government (and by implication the taxpayer) has been saddled with a substantially greater debt burden. The government has also made clear its intention to return these banks to the private sector, so in the long run the impact on PSND is unlikely to be permanent.

**Conclusion**

ONS, the Bank of England and HM Treasury are working closely with RBS and the Lloyds Banking Group to correctly classify all subsidiaries of the two groups and then incorporate the relevant data into the public sector finances. Work is also ongoing to resolve disclosure issues so that more asset and liability detail can be published, in the interests of transparency.