

FEATURE

Leonidas Akrtidis
Office for National Statistics

Improving the measurement of banking services in the UK National Accounts

SUMMARY

This article was first released on the National Statistics website to coincide with the launch by the Office for National Statistics of the experimental statistics release and transmission to the European Commission of new estimates reflecting changes to the way that Financial Intermediation Services Indirectly Measured (FISIM) is treated in the UK National Accounts.

The article defines the UK methodology in calculating and allocating FISIM and describes the changes to the National Accounts. It also provides the impacts of early estimates at both current prices and chained volume measures on gross domestic product levels and growth.

Fhe concept of Financial Intermediation Services Indirectly Measured (FISIM) is a simple one that is taken for granted when doing business with financial institutions. Instead of a direct charge, many services provided by financial institutions are paid for by an interest differential, that is, the institutions pay depositors a lower rate of interest than they charge borrowers. FISIM imputes indirect charges for these services.

At present, the concept of FISIM has not been fully implemented into the UK National Accounts, but what is done does comply with a treatment permitted in the System of National Accounts (SNA).

ONS will amend the UK National Accounts to reflect changes to the treatment of FISIM at *Blue Book* 2008. The FISIM estimates will be incorporated as one of the major changes that take place during the *Blue Book* 2008 process, when the new National Accounts system will be introduced. The figures in this article are estimates of changes in headline figures in current prices and chained volume measures that would occur only in the absence of any other changes; they cannot be regarded as an indicator of the likely revision in 2008. The National Accounts remain ONS's best view of economic activity and growth in the UK economy.

The concept of FISIM

The UK National Accounts are compiled according to international rules and guidelines set out in the United Nations System of National Accounts that were updated in 1993. European Union Member

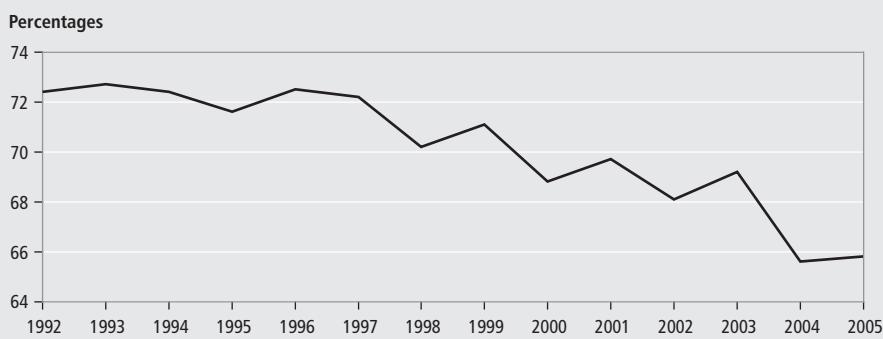
States are legally required to comply with these rules as set out in the European System of National and Regional Accounts (ESA95). The activity of financial services in general, and of banks in particular, has long been a challenging area for those who develop international standards. Market economic activity can be measured as cash values of sales and purchases of identifiable units, such as cars or haircuts. These cash values can then be deflated to remove inflation effects to enable real growth to be derived. However the activity of banks is not so easily captured.

Banks make explicit charges for some services, such as commission on foreign exchange, account charges and flat rate fees for overdrafts. But the amount of these charges is significantly below the costs paid by the banking industry on wages and bonuses, and on intermediate costs such as rental, electricity and stationary purchases. So, under the conventional treatment, there was the threat of what the OECD described as 'the paradox of a prosperous industry showing a negligibly positive, or even negative, contribution to the national product'.

This discrepancy arises because the banking sector relies extensively on revenues accruing from interest flows. According to standard national accounting conventions, earnings from interest are not defined as part of corporations' output, value added or gross operating surplus. They do not contribute to GDP or to economic growth. The concept of FISIM is a consequence of long-standing international discussions aimed at resolving this paradox.

Figure 1

Share of FISIM in the total of implicit and explicit financial services charges, current prices



The concept itself was introduced in the 1993 SNA, which outlined how an estimate for the output of FISIM should be calculated, and specified alternative treatments for the allocation of FISIM.

While FISIM is a very important component of banks' revenues, **Figure 1** shows that its share of explicit and implicit charges decreased from 1993 to 2005. At the same time, the share taken by explicit charges, such as fees and commissions, rose.

The treatment of FISIM in the SNA 1993 and the ESA 1995

The SNA recognises that financial intermediaries (FIs) provide services to consumers, businesses, governments and the rest of the world for which explicit charges are not made. In associated guidelines, a number of such services are identified, for example:

- taking, managing and transferring deposits
- providing flexible payment mechanisms such as debit cards
- making loans or other investments
- offering financial advice or other business services

More generally, FIs provide security and convenience. On the loan side, FIs provide rapid and flexible credit facilities involving some assessment of risk and creditworthiness.

The FIs charge explicit commissions and fees for their services to their customers, and implicit ones by paying or charging rates of interest that differ between borrowers and lenders. They pay lower rates of interest than would otherwise be the case to depositors, and charge higher rates of interest to creditors. The resulting receipts of interest are used to offset their expenses

and provide an operating surplus. This scheme of interest rates avoids the need to charge customers individually for services provided, and allows the pattern of interest rates to be seen in practice. However, in this situation, the National Accounts must use an indirect measure of the value of the services for which the intermediaries do not charge explicitly. This is FISIM.

FISIM output generated by FIs should be allocated between the users of the services for which no explicit charges are made. The SNA 1993 acknowledged the practical difficulty of developing a method of allocating FISIM between different users in a way that is conceptually satisfactory from an economic viewpoint and for which the required data are available. Hence, SNA allows use one or other of two different approaches:

Approach 1: Allocation of FISIM into a 'nominal' sector

The SNA 1993 permits a simplified approach, where (by convention) FISIM output is not allocated between users but is treated as absorbed by the intermediate consumption of a 'nominal sector'. In consequence, the estimate of FISIM is not allocated into user sectors or industries. In this approach, GDP is not affected by the size of the FISIM output (SNA93, paragraph 6.126).

ESA95, as originally published, did not require introducing FISIM allocation in National Accounts, because EU countries had concerns about the availability of source data and the reliability of the methodology. This approach is currently used in the UK.

Approach 2: Allocation of FISIM into user sectors

The recommended approach involves a full allocation of the use of FISIM across relevant sectors and industries.

The purpose of allocation of FISIM by sectors and industries is to identify the purchase of these services explicitly and to classify them as intermediate consumption, final consumption expenditure or exports according to which sector incurs the expenditure. (SNA93, Annex III, paragraph 5)

According to the European Council Regulation, which amended the ESA 1995,¹ the FISIM estimate is allocated into sectors in the National Accounts as follows:

- intermediate consumption for the services attributed to non-financial corporations, other financial corporations, general government, households as owners of dwellings, households as owners of unincorporated enterprises, and non-profit institution serving households
- final consumption expenditure for the services attributed to households for individual consumption
- exports for the services attributed to non-residents

There is also an estimate for imports of FISIM, which is allocated into intermediate or final consumption. In addition, there are technicalities concerning FISIM allocation in National Accounts, for example, treatment of non-market units and producers of housing services (see section on specific treatment of FISIM allocation).

According to the Regulation, FISIM is calculated and allocated on loans and deposits only. This is determined by the following arguments:

- the banks control the interest rates of loans and deposits only, and do not control the interest rates of other financial instruments, such as bonds and other securities
- interest rates on loans and deposits are easily identifiable, with a clear distinction of interest rates charged on loans (being higher) and on deposits (being lower). This distinction is very important because the calculation method of FISIM allocation is based on the difference between effective interest rates and reference rate (representing the pure cost of borrowing funds – see more in the next section). This distinction is not very clear for bonds or other securities

- in some cases, calculation of FISIM on bonds resulted in negative FISIM margins. This is because the reference rate is not always lower than the effective interest rate received on bonds. Sometimes, banks hold treasury bonds issued some years ago with very low interest rates

It should be stressed that inclusion of other securities, such as bonds, into the calculation of FISIM allocation lowers the value of FISIM, and in some cases results in negative FISIM margins. Moreover, the calculation of FISIM allocation was tested by trial exercise by various EU countries. The results of this test showed that the difference in calculating FISIM allocation including and excluding securities is negligible. This proves that there is not much service element indirectly measured in other financial instruments provided by the FIs. In many cases, trading companies (such as undertakings for collective investment in transferable securities (UCITS)) involved in trading securities do not even have staff.

The application of approach 2 means that the total amount of FISIM allocated into final consumption expenditure and net trade (exports less imports) contributes directly to GDP, and increases its level. However, there are no changes to net borrowing in the sector accounts, as the amounts that are added to final consumption are offset by reductions in interest payments.

Methodology

Construction of current price FISIM

In the new methodology, FISIM allocation is calculated from the perspective of the FIs that generate FISIM on loans and deposits *vis-à-vis* counterpart users' sectors, which are the FISIM consumers. According to the Regulation, the allocation of FISIM is calculated as the difference between the effective rates of interest payable and receivable, and a 'reference' rate of interest.

According to SNA93, 'this reference rate represents the pure cost of borrowing funds – that is, a rate from which the risk premium has been eliminated to the greatest extent possible, and that does not include any intermediation services.' (Paragraph 6.128)

To illustrate FISIM calculations, take two examples:

A loan of £1,000:

- interest receivable by the FI 9 per cent
- reference rate 4 per cent
- FISIM on loan = £1,000 x (9 per cent – 4 per cent) = £50

A deposit of £1,000:

- interest payable by the FI 3 per cent
- reference rate 4 per cent
- FISIM on deposit = £1,000 x (4 per cent – 3 per cent) = £10

Total FISIM on loans and deposit = £60

This method of calculating and allocating FISIM requires detailed sector data on stocks and interests for loans and deposits. The data are collected from various inquiries but their degree of detail differs over time.

The data to calculate FISIM output generated by the UK banks and building societies, namely monetary financial institutions (UK MFIs), are obtained from different sources for each of two time periods:

- from 1999, detailed data collected by the Bank of England from its own specially designed inquiries²
- before 1999, detailed stocks data sourced from the Bank of England and interest data derived by ONS from the effective interest rates used elsewhere in the National Accounts

The remaining source data required to calculate FISIM output generated by the other FIs and the FISIM imports series are obtained from ONS inquiries and the Balance of Payment statistics.

According to the Council Regulation, the internal reference rate used to calculate FISIM *vis-à-vis* resident user sectors should be calculated as the ratio of accrued interest received on inter-bank loans to the corresponding average stocks. However, in the UK, it was recognised that the currency mix of inter-bank business was significantly different from that with the FISIM-consuming sectors. Therefore, FISIM is calculated separately for sterling, Euro, Dollar and other currencies using the sterling, Euro and US official interest rates as the reference rates. The overall internal reference rate is therefore calculated as a

weighted average of Sterling, Euro and US official interest rates³ based on the resident sector split of balance sheet holdings.

The Regulation also specifies that an external reference rate should be used to calculate FISIM exports and imports. This is calculated as the ratio of accrued interest received on loans and paid on deposits between resident and non-resident FIs to the corresponding average stocks. However, data with non-resident FIs are not available in the UK, and the external reference rate is calculated as the mid-rate between the calculated loan and deposit rates from the stocks and interest data.

FISIM generated by the UK MFIs is compiled for loans and deposits by the currency split for each of the following domestic user sectors: non-financial corporations, other financial corporations,⁴ general government (GG), households, and non-profit institutions serving households (NPISH).

FISIM is calculated by applying the appropriate reference rate (internal or external) to collected sectorised stocks that FIs hold for loans and deposits. This gives a figure for estimated interest receivable at the reference rate.

FISIM generated is then the difference between effective interest reported for each sector and the interest generated at the reference rate. The sum of FISIM estimates represents the output of FISIM generated by FIs. The FISIM estimates by sectors are allocated in the National Accounts following the recommendation described in approach 2 (see the concept of FISIM section)

Some household borrowing from FIs that is secured on dwellings is used to finance individual consumption. This proportion is calculated by the Bank of England, and is known as mortgage equity withdrawal (MEW). FISIM on dwelling loans is allocated into intermediate consumption, whereas FISIM on consumer loans is allocated into final consumption. Therefore, it is necessary to adjust for the above-mentioned effect by moving the corresponding amount of MEW from the FISIM estimate on dwelling loans into the FISIM estimate of consumer loans. The latter adds to GDP.

Additional calculation is made for FISIM estimates generated by the other financial intermediaries (OFIs) and allocated into

intermediate and final consumption of households. This is calculated using margins developed by the Bank of England and applied to corresponding stocks obtained from ONS inquiries.

There is also an estimate of FISIM imports generated by non-resident FIs. This is calculated using stocks obtained from the Balance of Payment statistics and margins derived as the difference between the external reference rate and corresponding effective interest rates (used elsewhere in the National Accounts).

It is worthwhile noting that the substantial majority of total FISIM is generated by the UK MFIs.

A calculation is then made to allocate the total value of FISIM intermediate consumption for each sector into industries, using shares of the stocks of loans and deposits for each industry, and supplementing these by the shares of gross value added for each industry.

Specific treatments of FISIM allocation

It is worthwhile mentioning a few very specific treatments of FISIM allocation in National Accounts:

- the non-market units belonging to the sectors of GG or NPISH have no final consumption of FISIM. These units make only intermediate consumption that increases the output of GG or NPISH sectors, given they are calculated as a sum of costs.⁵ By convention, the output calculated at cost must also be recorded as final consumption of GG or NPISH sectors, because they consume their own outputs
- people who own the dwellings that they live in are treated in the National Accounts as producers of housing services that they then consume. Again, when owner-occupiers take out loans/mortgages (on dwellings) they are paying an implied service charge. Because the transaction is regarded as production, the associated FISIM is regarded as intermediate consumption by the owner-occupier (as part of the cost of production of the housing service)
- the central bank is not taken into account in the calculation of FISIM output and its allocation among user sectors. The output of the central bank is measured as the sum of its costs

Construction of chained volume measures of FISIM

The European Commission decision of 17 December 2002⁶ states that there is no directly observable price or quantity that is truly representative of the output of FISIM from a purely theoretical viewpoint. Therefore, methods for measuring FISIM at constant prices have to be based on conventions.

The first method relies on detailed output indicators, which cover the activities that generate FISIM. Possible indicators could be the number of bank accounts, number and value of loans and deposits, number of cheques processed, and so on. In this method, it is important to take into account the differences between the business and the consumer markets, and develop different output indicators for both markets. The value of FISIM has to be broken down by the different activities to provide the weights for aggregating the output indicators. Unfortunately, this breakdown seems to be both a practical and a conceptual problem.

The second method is the application of the base-year margins of loans and deposits (by user sectors and exports and imports of FISIM) to an appropriate volume indicator. The volume indicator is developed by deflating the corresponding stocks of loans and deposits. The most relevant deflator is one with a wide coverage and hence the approach adopted uses the GDP deflator. This method is used in the UK.

The method of the base-period margin is relatively easy to apply. It leads to chained volume measures (CVM) where the base-period is updated every year. The application of this method shows that FISIM series at CVM are stable, because the

stocks increase only gradually over time. Volatility in the FISIM series is caused by movement in the interest margins. When these effects are removed, the resulting CVM series are stable, which is important for the growth measure.

Analysing FISIM estimates

Estimation of FISIM

FISIM estimates are shown in figures that follow, and in the tables accompanying the web version of this article, available at www.statistics.gov.uk/articles/nojournal/FISIM_Akritidis.pdf. The full series run from 1993 to 2006; selected series, however, are also available electronically starting from 1961.

Figure 2 shows the level of FISIM resources between 1993 and 2006. The total FISIM resources generated by resident FIs (output) and non-resident FIs (import) at current prices shows continuous and gradual increases over time. It shows that the largest increases in the level of FISIM occurred in 1999 and 2006. In 1999, this increase was driven by strong FISIM exports, whereas in 2006 it was by strong intermediate and final consumption of FISIM. The changes in the FISIM levels appear to be strongly influenced by the movements in interest rates, which are analysed in more detail in the next sections.

Figure 2 also illustrates that FISIM resources allocated into final consumption gradually overtook those allocated into intermediate consumption. From 1993 to 2006, the share of total FISIM allocated into final consumption increased from 34 to 45 per cent, the share allocated into intermediate consumption decreased from 56 to 44 per cent, and that to exports increased slightly from 10 to 11 per cent.

Figure 2
FISIM resources and its allocation, current prices

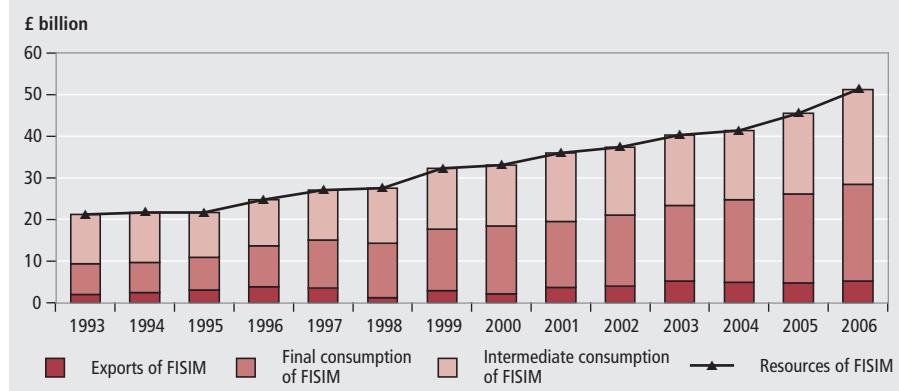
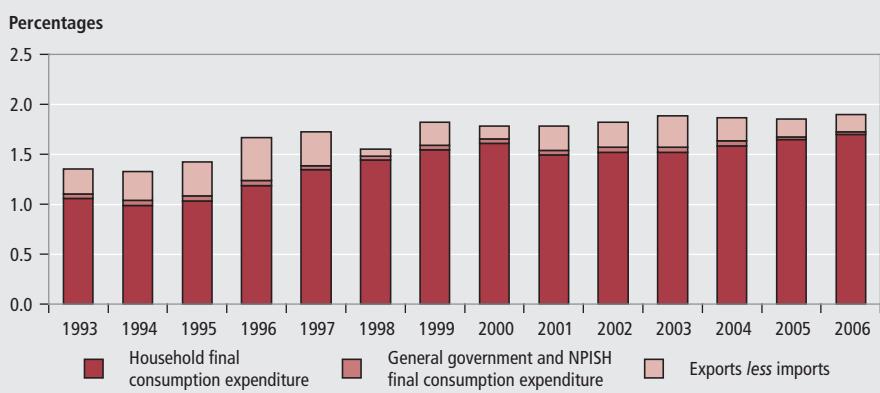


Figure 3
Effect of including FISIM with GDP expenditure, current prices



FISIM and GDP at current prices

The published level of GDP at current prices is based on balancing production, expenditure and income estimates by products and industries using the input-output supply-use framework. This includes GDP estimates up to 2004.

However, the GDP estimates after 2004 are, for years and quarters, mainly determined by the output measure of GDP.

As previously explained, FISIM is calculated from the perspective of FIs *vis-à-vis* resident user sectors. Consequently, the allocation of the total FISIM estimate has an equal impact on all three measures of GDP. It is therefore possible to anticipate the changes in GDP due to the changed treatment of FISIM through analysing the expenditure measure. In the expenditure measure of GDP, the impact of FISIM corresponds to the sum of FISIM components allocated into the final consumption expenditures and net trade (exports less imports).

Figure 3 shows FISIM allocation into the expenditure measure of GDP at current prices:

- from 1993 to 2006, the allocation of FISIM increased the level of GDP by an average of 1.7 per cent. This impact was mainly driven by FISIM allocated into household final consumption, where it increased the level of the components by an average of 1.4 per cent in the same period
- from 1993 to 1995, the contribution of FISIM allocated into GDP was smaller than in the later periods due to a smaller share of FISIM allocated into household final consumption. It should be noted that in 2001 this share decreased slightly due to changes in interest rates (see detailed analyses in Box 1)
- after 1999 the impact of FISIM on GDP was stable

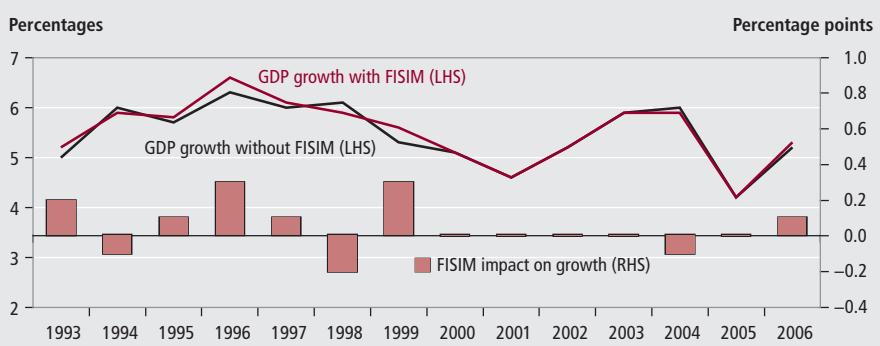
In 1998, there was a one-off decrease primarily due to the share of exported FISIM. This was due to changes in the interest rates of foreign currencies, especially US dollar rates, which resulted in generating a smaller value on FISIM by the resident FIs on both loans to, and deposits by,

non-residents. The volatility in the rates was caused by the collapse of Long Term Capital Management in August 1998 in the USA.

Figure 4 shows the impact of FISIM allocation on GDP growth at current prices in the expenditure measure from 1993 to 2006. This impact was very small, averaging 0.1 percentage point. There was no impact in four of the 14 years. There were:

- small increases of 0.1 to 0.3 percentage points in six years (1993, 1995, 1996, 1997, 1999, 2006)
- small decreases of 0.1 to 0.2 percentage points in three years (1994, 1998, 2004)

Figure 4
Impact of FISIM allocation on GDP growth, current prices, expenditure measure



Box 1**Detailed analyses of FISIM on consumer loans deposits and impact of interest rates**

The main impact of FISIM on GDP comes from the share of FISIM allocated into household final consumption expenditure. **Figure 5** separates out the impact on loans and deposits.

It shows that, from 1993 to 2006, FISIM allocated into consumer loans and deposits increased substantially from £6.9 billion to £22.8 billion. While FISIM generated on both loans and deposits has increased, the movement is driven by FISIM on loans. The dip in 2001 was due to a fall in FISIM on consumer deposits.

Figure 6 shows FISIM on consumer loans gradually increasing from 1993 to 2006, except for small decreases in 2000 and 2004. These decreases were mainly driven by FISIM generated by UK MFIs.

Figure 5
FISIM on consumer loans and deposits, current prices

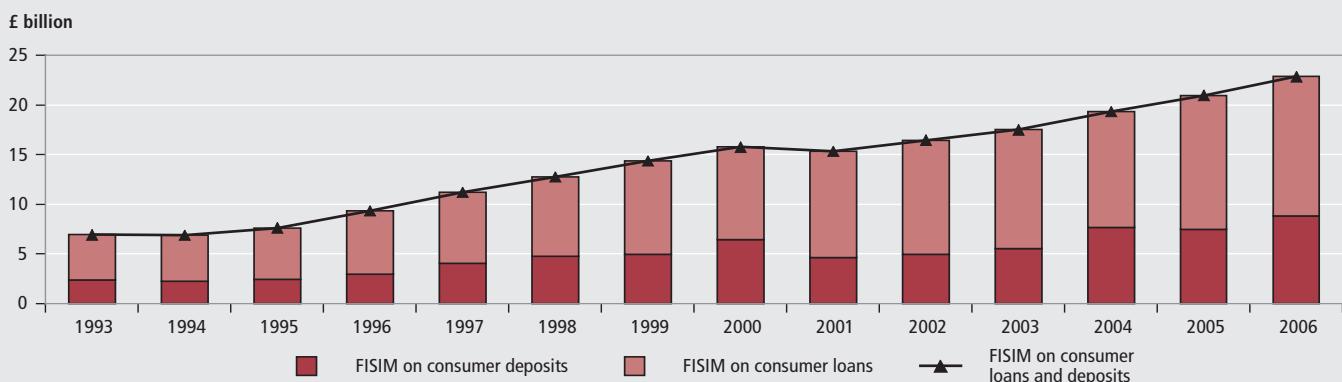


Figure 6
Components of FISIM on consumer loans, current prices

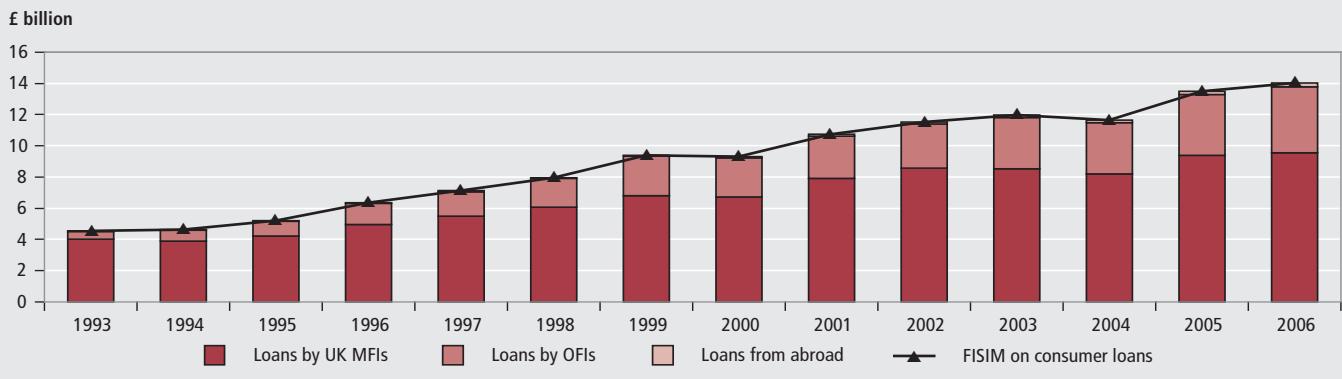
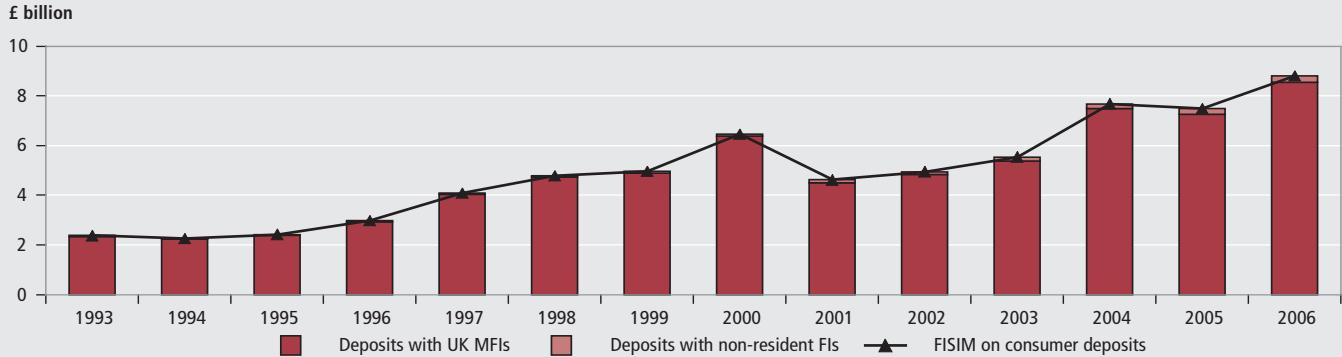


Figure 7
FISIM on consumer deposits, current prices



FISIM on deposits is more variable and is the main cause of the volatility of total FISIM allocated into household final consumption expenditure. **Figure 7** shows that after a big increase to £6.4 billion in 2000, FISIM on deposits with UK MFIs dropped heavily in 2001 to £4.5 billion, and took three years to recover. There was also another, although modest, decrease in 2005.

Because FISIM on deposits is more volatile than the corresponding FISIM on loans, it is examined in some more detail here. As explained, FISIM on deposits with UK MFIs is calculated by applying the reference rate to the stock of deposits. This figure is then subtracted from actual reported interest flows to obtain FISIM. The volatility of FISIM on deposits is driven by an inelastic effective rate that is slow to adjust in line with the reference rate.

Figure 8 shows that the large decrease in FISIM on consumer deposits in 2001, and the small one in 2005, were each due to the narrowing of the margin between the reference rate and the effective interest rate. However, the stock of deposits was stable and increasing over time.

Figure 8
FISIM on consumer deposits with UK MFIs, current prices

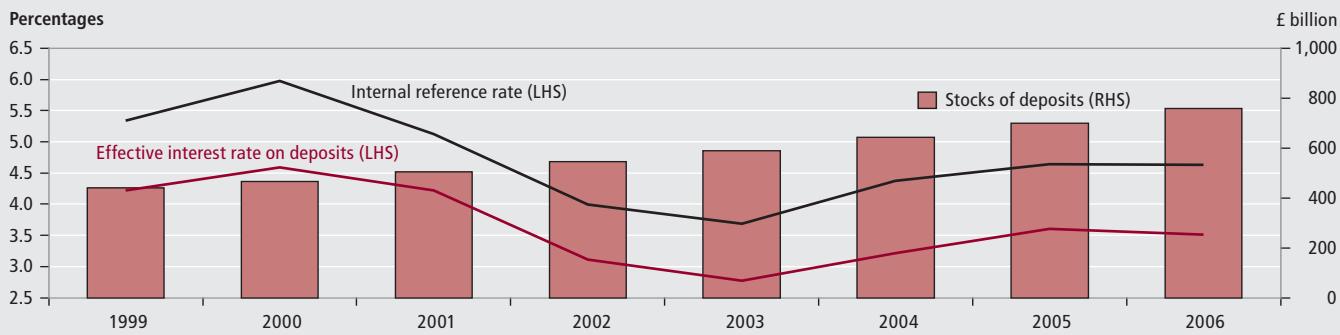
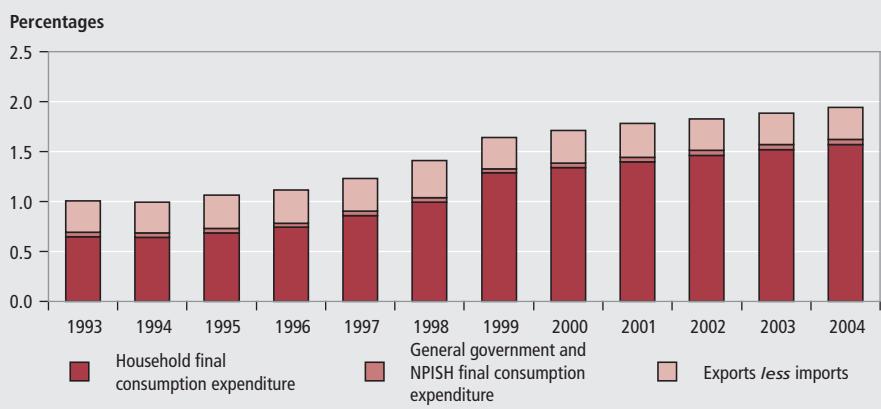


Figure 9
Effect of including FISIM with GDP expenditure, CVM



FISIM and GDP at chained volume measures

As mentioned in the previous section, FISIM is a price phenomenon, and when its effect is removed from the calculations, the resulting series should be more stable.

Figure 9 shows that, from 1993 to 2004, the allocation of FISIM to GDP at chained-volume measures (CVM) gradually increased over time. FISIM increased the level of GDP at CVM by an average of 1.5 per cent. This was mainly driven by FISIM allocated into household final consumption, which accounted for an average of 1.1 per cent of the increase over the same period.

FISIM impact on GDP growth at chained volume measures

The annual GDP at CVM is derived from the current prices level of GDP deflated at detailed component level using the expenditure measure (up to 2004).

Quarterly GDP growth at CVM is mainly determined by the output measure of GDP. At present, the GDP output measure of the banking industry consists of two components that are calculated separately, namely:

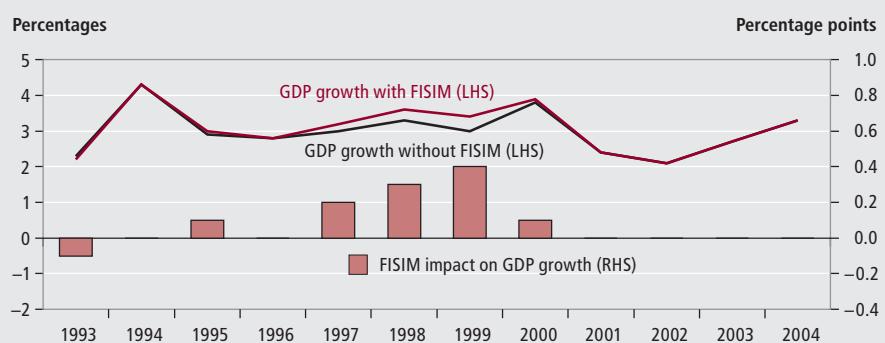
- a FISIM estimate that is derived from a system that actually gives a broader coverage than required by the Council Regulation
- a fees and commissions estimate sourced from the Bank of England inquiries

The FISIM component is offset by a negatively weighted 'nominal sector'. This is known as the financial services adjustment (FSA), and ensures that FISIM does not add to GDP. Under the revised treatment:

- the FSA is removed so that the output of FISIM does add to GDP
- intermediate consumption of FISIM is allocated into industries through adjusting industry weights

Figure 10 shows the impact of FISIM allocation on annual GDP growth at CVM in the expenditure measure. It shows that the impacts on annual GDP growth were very small. There was no impact in six years (1994, 1996, and after 2001) and small changes (between 0.1 and 0.4 percentage points) in the other six years.

Figure 10
Impact of FISIM allocation on GDP growth, CVM, expenditure measure



- improved measures of quarterly output from FISIM are introduced

In advance of *Blue Book* 2008, it is not possible to anticipate fully the changes in GDP due to the implementation of FISIM and hence the impact on the quarterly path.

Moreover, as one of the many changes coming through in *Blue Book* 2008, any estimates of the impact on the quarterly path may bear little resemblance to those finally published. Given these caveats, ONS has simulated the impact of FISIM implementation on quarterly growth over the period between 2000 Q1 and 2004 Q4. The results are shown in **Figure 11** and **Figure 12**.

Figure 11 shows that the impacts on quarter-on-quarter GDP growth in the 20 quarters from 2000 to 2004 were zero or small. There was no impact in 11 quarters. There were small increases (between 0.1 and 0.2 percentage points) in eight quarters and only one small decrease, of 0.1 percentage point, in 2003 Q3.

Figure 12 shows that although the impacts on quarter-on-quarter of previous year GDP growth, these were slightly larger. There was no impact in three quarters. There were small increases (0.4 percentage point or less) in 14 quarters and small decreases of 0.1 percentage point in the other three quarters.

Publication of FISIM and implementation in the UK National Accounts

This article provides indicative results of FISIM and the allocation in the National Accounts. As emphasised, the UK is obliged to implement these changes in the National Accounts. This obligation coincides with the programmes of work to modernise the UK National Accounts, as explained in Beadle (2007).⁷

The required methodologies will be incorporated for the data set published in *Blue Book* 2008. The revised treatment of FISIM will be fully implemented into the accounts at that point in time.

In the meantime, however, the new FISIM estimates have been published in an experimental quarterly statistical release, starting on 30 March 2007, so that an ongoing series is in the public domain.

The estimates have also been incorporated in the six-monthly ONS First Release on Government deficit and debt under the Maastricht Treaty.

Notes

1 Council Regulation (EC) No 448/98 of 16 February 1998, completing and amending Regulation (EC) No 2223/96 with respect to the allocation of financial intermediation services indirectly measured (FISIM) within the European system of national and regional accounts (ESA).

2 In 2004, the Bank of England introduced a new Profit and Loss (PL) inquiry form to collect detailed sector interest data on loans and deposits, required for the new FISIM method. This improved the data quality. Data before then were reliant on a form, which was not detailed enough for this purpose. Therefore, for 1999 to 2003, sector interest data is derived using average later information from the new PL form together with movements in effective interest rates and balance sheet holdings over time.

3 Repo rate – this is the main refinancing agreement rate or the official Central Bank Rate paid on commercial bank reserves maintained by the Central Bank.

4 This sector does not include the units, which are producers of FISIM.

5 The SNA93 recommends that the value of output of non-market goods and services produced by government units or non-profit institutions should be estimated on the basis of the total costs incurred in their production and that the cost of using non-financial assets should be measured as consumption of fixed capital (paragraph 6.91).

6 EC 2002/990 on further clarifying Annex A to Council Regulation (EC) No 2223/96 concerning the principles for measuring prices and volumes in National Accounts. Document number C(2002) 5054.

7 Ibid.

Figure 11
Impact of FISIM allocation on GDP growth, CVM, output measure, quarter on previous quarter

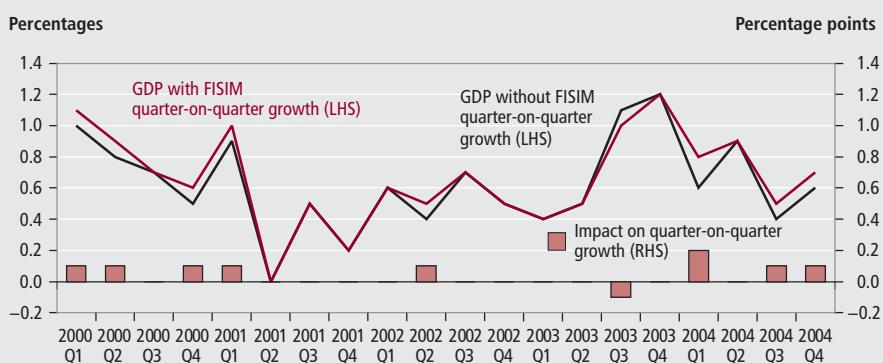
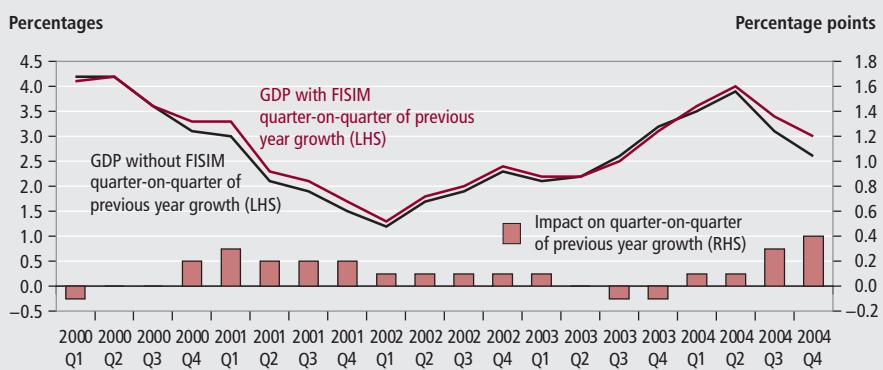


Figure 12
Impact of FISIM allocation on GDP growth, CVM, output measure, quarter on quarter of previous year



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CONTACT

 elmr@ons.gsi.gov.uk

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