

The measurement of financial services in the national accounts and the financial crisis

Michael Davies¹

Introduction

The current financial crisis has placed a strain on the ability of National Statistics Offices (NSOs) to measure developments in both the real and financial domains. Big shifts in flows, assets and liabilities as well as sharp changes in real activity and prices have strained the ability of established statistical sources and methods to provide a coherent representation of developments. Nowhere is this more evident than at one point of intersection of the real and financial domains: the measurement of financial services.

Financial services provided by financial intermediaries are paid for by both direct and indirect charges. Direct charges are those that are directly charged and include account keeping fees, credit card fees, brokerage on share trading, financial advice fees and asset management costs. Indirect charges are called Financial Intermediation Services Indirectly Measured (FISIM).

This paper is written in the context of difficulties in the measurement of financial services in Australia during the current financial crisis and reports of similar problems being experienced in other countries, especially with FISIM.

The definition and derivation of FISIM have evolved as the System of National Accounts (SNA) has moved through its versions. Attachment 1 summarises the culmination of this evolution as reflected in SNA 2008.

FISIM misbehavin'

During the recent turmoil in financial markets worldwide, the established methods for calculating financial services have produced results which are hard to interpret. In Australia, several sources and methods have produced such results, but the problematic estimates which have had the biggest impact have been those produced for FISIM.

The basic concept of FISIM is consistent with SNA principles. It was subjected to significant scrutiny during the recent update of the SNA and there is general agreement that it is sound. The minor refinements reflected in SNA 2008 have been accepted as improvements.

In the discussion leading up to SNA 2008, the method of calculating FISIM using a service and risk-free reference rate was generally accepted.

Nevertheless, the methods based on the SNA produce results that are not considered plausible by users of the data. In Australia, the established methods produced extremely high growth in the output of financial services which was not supported by industry intelligence or financial intermediary activity and profits. In Europe, the ECB has reported "distortions of the

¹ Macroeconomics and Integration Group, Australian Bureau of Statistics (e-mail: michael.davies@abs.gov.au). The views expressed in this paper are those of the author and do not necessarily represent those of the Australian Bureau of Statistics. Where quoted, they should be clearly attributed to the author.

FISIM computation” and “implausible results”. “Implausibility” is subjective and this is discussed later in the paper. For the moment, let us accept that current methods produce results which are difficult to interpret in an SNA context.

Several aspects of established methodologies have contributed to this. They are discussed below.

Reference rate

Experimental work within the Australian Bureau of Statistics (ABS) has established that the level of current price FISIM can be quite sensitive to the choice of the reference rate.

In the determination of the level of FISIM, in the simplest case where loans equal deposits, the level of FISIM is determined by the difference between the yields on the deposits and loans. The reference rate simply determines the allocation of FISIM between depositors and borrowers. However, the definition of FISIM does not require equality between deposits and loans. This means that the choice of reference rate, whether exogenous (for example an interbank rate) or calculated as the midpoint between two rates, can have a significant effect on the level of FISIM.

In Australia, a midpoint reference rate is used for practical reasons. It has the advantage of helping both to stabilise the allocation of output to user sectors and to reduce the likelihood of negative FISIM since the exogenous rates (interbank or treasury rates) can move more than the rates on deposits and loans. However, there are disadvantages. For example, when the securitisation of home loans increased significantly, the application of a reference rate calculated as the midpoint between the rates for deposits and loans to loans financed by securities issued by securitisers produced results which were difficult to interpret. As a result, the ABS introduced yields on securities issued by securitisers into the calculation of the reference rate.

Experimental work by the ABS applying a variety of methods to a common dataset gives the following initial indications:

- in many cases, using a midpoint reference rate gives less volatile results than using an exogenous reference rate
- when using a midpoint reference rate, a close match between the assets and liabilities used to calculate the reference rate and the assets and liabilities on which FISIM is calculated gives better results
- the closer assets and liabilities are to equality, the better the results.

Price and volume

The second significant contributor to the production of implausible FISIM results is the difficulty in splitting current price levels into price and volume components.

In theory, price and volume measurements should be calculated for the bundle of services made up of FISIM and services paid for directly. However, for the sake of simplicity, the following assumes that FISIM is a separately identifiable bundle of services.

The financial services paid for indirectly are like any other service produced in the economy. The fact that they are paid for indirectly does not affect the nature of the service. Like all goods and services in the SNA framework, FISIM has a volume and a price dimension.

It is difficult to split payments for services into volume and price, regardless of how they are paid for. Several approaches can be used. One is to identify a volume of services, for example a number of transactions, and use that to calculate a volume which is divided into the value of the transactions to derive an implicit price. Another is to deflate values using an appropriate price index.

A method recommended by the AEG during the update of the SNA for calculating movements in the volume of FISIM is based on the assumption that the volume of services is proportional to the balances to which they relate. A change in real balances from one period to the next is calculated by removing price change using a general price index. The change in the volume of services is assumed to be the same as the change in real balances.

The AEG recommends using a method whereby a change in the level of deposits and loans is a volume change, and a change in the difference between interest rates on deposits or loans and the reference rate is a price change.

The derivation of these volume and price changes is based on readily available data and is straightforward.

However, a variety of methods are used in different countries to calculate the volume of FISIM. Some rely on price indices to derive volumes. This can produce very different results from the method recommended by the AEG and the interpretation of the “volumes” derived is not clear.

Nature of the service

The recent developments regarding FISIM have led to a lively debate on the nature of the services which should be included in FISIM, with a focus on compensation for components related to risk.

Fundamental questions in relation to the concept of FISIM have been raised in the ECB paper “An enhanced methodology for compiling FISIM”. The paper is based on the assertion that recent estimates of FISIM in the European Union are not plausible because of the volatility in current price estimates.

The current price estimates produced by the EU method are quite plausible. For example, in the case of a strong rise in current price FISIM, there are three broad possibilities:

- *The volume of services has risen strongly and the price has not changed.*

The world is going through a financial crisis. The complexity, and possibly the quantity, of the work done by financial intermediaries to continue to provide something resembling “business as usual” has risen. This can be seen as a volume increase, reflected in increased FISIM.

- *The price has risen strongly and the volume has not.*

The financial crisis has increased the cost of the provision of delivering “business as usual” services and the price of these services has risen significantly, reflected in increasing FISIM.

- *Both price and volume have risen.*

This is a combination of the two situations described above.

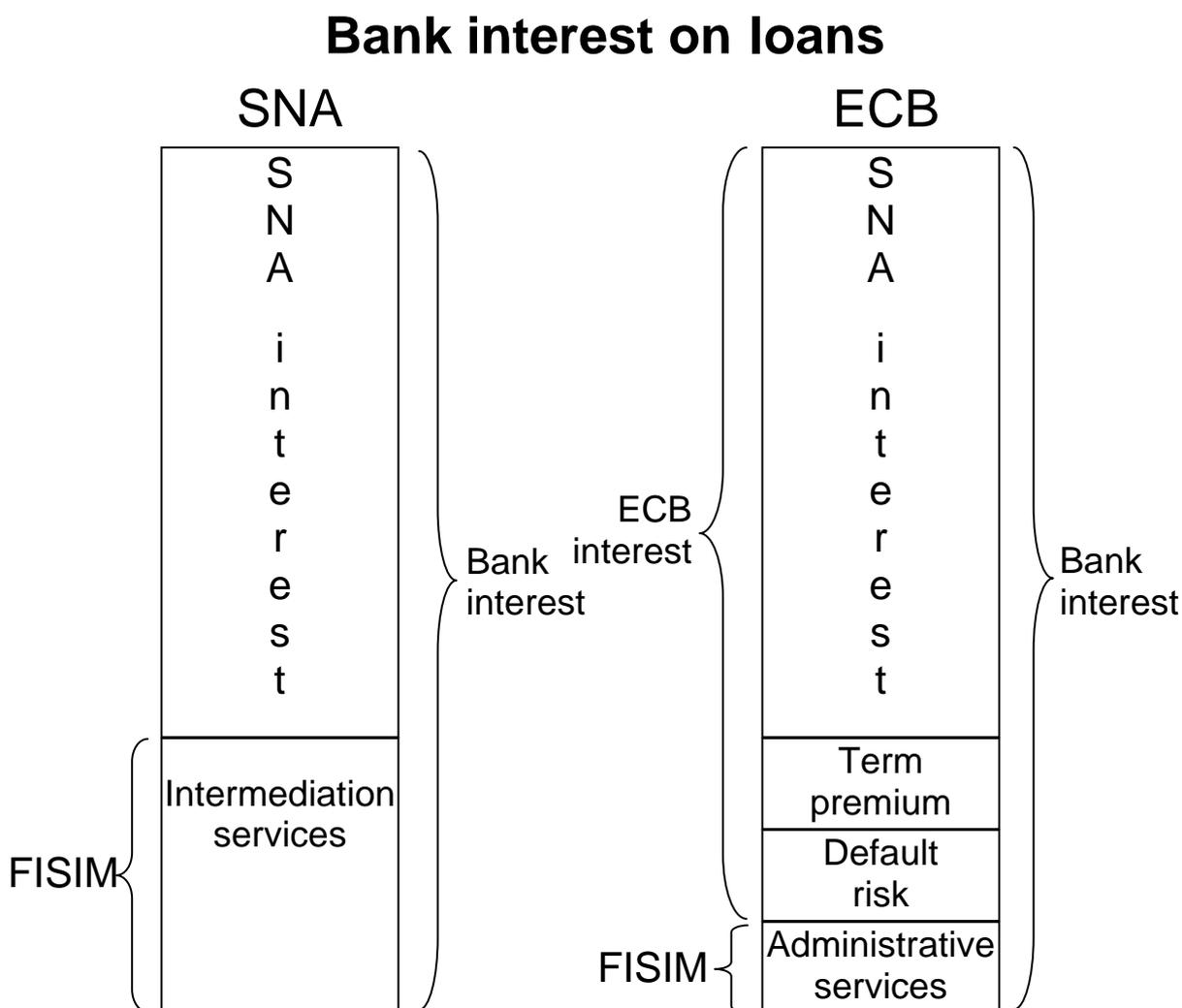
An analysis of the recent behaviour of FISIM in price and volume terms is necessary to support the contention that the estimates are implausible. The assumption made in the paper that current price output is a function of changes in input and technology is not tenable. Inputs, technology and volumes of output can stay the same while current price output varies with price. Significant price volatility while volumes stay steady during a period of financial turmoil is plausible.

Nevertheless, the paper raises interesting fundamental questions in relation to the concept of FISIM. It presents an analysis which is based on the breakdown of bank interest into several components, rather than just two, as in SNA 2008.

In SNA 2008, interest payments made to, and received from, financial intermediaries are described as bank interest. Bank interest is made up of only two components, SNA interest and FISIM. There is no further breakdown of interest in the SNA. Although SNA 2008 describes the service as intermediation, from the point of view of the users, who deposit money in and borrow money from financial intermediaries, it is not possible to distinguish between the range of services they receive, which include financial intermediation, the safekeeping of funds, the issuance of cheque books etc, and risk management. Users are paying for a complex mix of services and the value of the services is the amount they are willing to part with to obtain those services. The total value of the services is direct charges plus FISIM. There has been a lot of discussion on the nature of the services over the years, and most have included risk management as a component of the services.

A comparison between the SNA 2008 concept and my understanding of the ECB concept is presented in Diagram 1, using loans to illustrate the breakdown.

Diagram 1



The paper suggests that the term premium and default risk are components of interest faced by lenders and borrowers other than those who lend to and borrow from financial intermediaries and are therefore part of the interest component rather than part of the services provided by financial intermediaries, labelled “Administrative services” in the diagram. This accords with an idea which underpinned the development of SNA 2008 FISIM, namely that there are no FISIM on securities on which financial intermediaries cannot set rates.

This is redefining not only FISIM, but interest. The SNA 2008 definition of interest is:

“Interest is a form of property income that is receivable by the owners of certain kinds of financial assets, namely: deposits, debt securities, loans and (possibly) other accounts receivable for putting the financial asset at the disposal of another institutional unit.” (SNA 2008, para 7.105)

The key point is that SNA interest is compensation for putting the financial asset at the disposal of another institutional unit. This definition fits well with the SNA 2008 breakdown of bank interest into SNA interest and a broadly defined set of services charged for indirectly. If we accept the ECB proposal, we need to redefine interest to include payment for default risk and the term premium. It could be argued that payment for default risk and the term premium are included in the broad definition “compensation for putting the financial asset at the disposal of another institutional unit”, but that does not appear to be the intention of the SNA 2008 definition.

The ECB proposal is an interesting one and identifies the nature of FISIM as an issue on which a variety of views are held. However, the proposal to redefine interest needs to be progressed in a broader discussion of the nature of interest and of income, rather than as a means of addressing perceived problems with FISIM.

Further exploration of this issue would be useful. Many of the issues which relate to the choice of reference rate or scope of the assets and liabilities on which FISIM should be calculated would be clarified by the outcome.

One issue to be considered is that if loans were marked to market and those values were used in deriving FISIM estimates, then the FISIM issues may be resolved, since an increase in credit risk would see a fall in the value of loans and in the value of FISIM, all else being equal. This needs to be incorporated into the unfinished debate on the valuation of assets and the recording of interest flows on a creditor basis.

Other problems with the measurement of financial services

This paper has focused on the definition and calculation of FISIM. However, the financial crisis has thrown up quite a few other challenges in the calculation of financial services.

The ABS has faced problems similar to those experienced in calculating FISIM with the calculation of the insurance service charge. This calculation is further complicated by the need to track equity in technical reserves and income flows from those reserves while asset values fluctuate. Clarification of the concept of income and the valuation of assets would also help in this case.

One problem of particular interest is related to the FISIM debate. There are several companies in Australia that manage large trusts set up to own infrastructure such as toll roads. The trusts pay the companies fees, which are recorded in the national accounts as fees for financial services. During the crisis, many of these fees have dropped substantially, presumably related to the drop in the value of the underlying assets (for example, if the project is highly leveraged). The fees are deflated using a price index, producing a big drop in the volume in this component of financial services. The question which arises is whether

changes in the current price level of fees represent a volume change, a price change, or both. An argument could be made that, if the fee relates to the underlying asset, for example a toll road, which is continuing to operate at the same level, the volume of service it relates to has not changed and, therefore, any change is a price change. This causes problems as fees drop and rise and is a worthwhile topic for discussion.

Similar problems to those described above have been experienced with fund management fees based on asset values.

Conclusion

The concept of FISIM has evolved during the development of the SNA and is sound. Implementation of FISIM has varied across countries, and some of the differences in practices reflect different understandings of the nature of FISIM. The different implementations have reacted differently to the recent financial crisis; this has provided insights into the nature of FISIM and has led to the current debate, which is as much an attempt to define interest as it is to define FISIM. Not surprisingly, the discussions lead back to the two major issues left unresolved in the update of the SNA: the definition of income and the valuation and recording of financial assets and interest flows.

A way forward is to:

- Investigate the nature of interest, including the proposition that interest is composed of identifiable separate components such as risk and term premium which need to be treated differently in national accounts. This needs to be done as part of a broader review of the concept of income.
- Analyse the combined impact of the choice of reference rate and the scope of the assets and liabilities which enter into the calculation of FISIM on the level of FISIM, taking into account the nature of FISIM and how that is reflected in these choices. This analysis must be done in terms of price and volume.
- Investigate the impact of using historical values, rather than current, marked to market values, for assets and liabilities (and hence yields) in the calculation of FISIM. This needs to be done in the context of a broader investigation of the recording of asset values and interest flows.
- Extend the investigation of the nature of financial services to other observed payments for financial services in order to identify the price and volume components.

Attachment 1: SNA 2008 FISIM

The definition and derivation of FISIM have evolved as the SNA has moved through its versions. The following summarises the culmination of this evolution as reflected in SNA 2008.

Each party to a deposit/loan position with a financial intermediary pays a fee to the bank for the service provided, the unit lending funds by accepting a rate of interest lower than that paid by the borrower, the difference being the combined fees indirectly charged by the bank to the depositor and to the borrower. From this basic idea, the concept emerges of a “reference” rate of interest. The difference between the rate paid to financial intermediaries by borrowers and the reference rate plus the difference between the reference rate and the rate actually paid to depositors represent charges for Financial Intermediation Services Indirectly Measured (FISIM).

An indirect service charge is to be imputed in respect of all loans and deposits offered by a financial institution irrespective of the source of the funds. The reference rate applies to both interest paid on loans and to interest paid on deposits, so that the amounts of interest recorded in the SNA (SNA interest) are calculated as the reference rate times the level of loan or deposit in question. The difference between these amounts and the amounts actually paid to the financial institution are recorded as service charges paid by the borrower or depositor to the financial institution. For clarity, the amounts based on the reference rate recorded in the SNA as interest are described as “SNA interest” and the total amounts actually paid to or by the financial institution are described as “bank interest”. The implicit service charge is thus the sum of the bank interest on loans less the SNA interest on the same loans plus the SNA interest on deposits less the bank interest on the same deposits. The service charge is payable by or to the unit in receipt of the loan or owning the deposit, as appropriate.

By convention within the SNA, these indirect charges in respect of interest apply only to loans and deposits and only when those loans and deposits are provided by, or deposited with, financial institutions.

SNA 2008 defines a single reference rate to be used in the calculation of SNA interest. This is a rate between bank interest rates on deposits and loans. However, because there is no necessary equality between the level of loans and deposits, it cannot be calculated as a simple average of the rates on loans or deposits. The reference rate should contain no service element and reflect the risk and maturity structure of deposits and loans. The rate prevailing for interbank borrowing and lending may be a suitable choice as a reference rate.

References

Advisory Expert Group (2006): *Minutes of fourth meeting*, Frankfurt, 30 January–8 February.

Hill, P (1996): “The services of financial intermediaries or FISIM revisited”, unpublished paper.

Mink, R and A Colangelo (2008): “An enhanced methodology of compiling Financial Intermediation Services Indirectly Measured (FISIM)”, paper presented at the OECD Working Party on National Accounts, Paris, 14–16 October.

Nordin, A (2005): “The production of financial corporations and price/volume measurement of financial services and non-life insurance services”, paper presented at the OECD Working Party on National Accounts, Paris, 11–14 October.

Obst, C (1996): “Comments on the proposal for a method of calculating and allocating FISIM”, paper presented at the Joint UN-ECE/Eurostat/OECD Meeting on National Accounts, Geneva, 30 April–3 May.

Organisation for Economic Cooperation and Development Task Force on Financial Services (Banking Services) in National Accounts (2003): *Measuring the production of financial corporations*.

United Nations Statistical Division, *2008 System of National Accounts (SNA 2008)* (pre-edit white-cover versions), vols 1 and 2 approved by the Bureau of the UN Statistical Commission in August 2008 and February 2009.