Measuring the Contribution of Financial Intermediation to Gross Domestic Product (GDP)

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Introduction

Measuring the contribution of financial intermediation services to Gross Domestic Product (GDP) is challenging. Agents within an economy that are primarily engaged in the activity of matching borrowers with lenders are termed as financial intermediaries within the System of National Accounts (SNA). This activity of financial intermediation is also considered to be a service output, provided to the other agents who are borrowers and lenders, which contributes to GDP. As occurs with typical service outputs, the charge for financial intermediation can be explicit through the levying of a commission or a fee. However, the majority of the charge is through financial institutions charging higher interest rates on loans made than what they pay on deposits held. Consequently interest flows within the national accounts framework are interlinked with measurements of output. The conceptual basis of interest flows has presented a number of long-standing measurement issues both in the New Zealand context and the development of standards internationally. The major challenge facing national accounts compilers is the partitioning of the relevant interest flows to derive a service component. This paper outlines the current and an alternative (best practice) approach of measuring interest flows in relation to the activities of financial intermediaries in New Zealand.

Background leading to the release of the paper

The 1993 revision to the System of National Accounts (1993 SNA) recommends partitioning interest payable by financial intermediaries on deposits and payable to financial intermediaries on loans into a service and a property income component. The service element is defined as Financial Intermediation Services Indirectly Measured (FISIM) and is allocated to intermediate and final use categories. The purpose of this partitioning of interest is to make the service item explicit[1] and attributable to the economic agent using the service and receiving or paying the interest on property income.

In April 2000, Statistics NZ released a revised set of national accounts in which the time series were presented on the basis of the 1993 SNA. Although FISIM is the preferred approach within the conceptual framework of the 1993 SNA, the 1968 SNA treatment of financial services measurement is an allowable standard. The 1968 SNA prescribed that a financial service charge be equated to the excess of the property income received by the banks and similar intermediaries on loans and other investments made from the deposits they hold, over the interest they pay out on these deposits[2]. It was also prescribed that the service charge is allocated to a nominal industry and treated as intermediate consumption. The effect of allocating all of the service charge to intermediate consumption is that it is equal to the output and has no effect on GDP. This alternative allowable standard recognised that many compilers of national accounts would have difficulty in accessing data of sufficient quality to adequately estimate and allocate FISIM. Prior to the release of the revised set of national accounts in April 2000, Statistics NZ considered that there were a number of unresolved conceptual issues in relation to the data available. On this basis it was decided to adopt the alternative standard and retain the methodology that is consistent with the 1968 SNA standard.

[1] System of National Accounts paragraph 3.67 (Commission of European Communities, IMF, OECD, United Nations, World Bank,2008)

[2] System of National Accounts paragraph 6.33 (United Nations,1968)

In the years following the April 2000 release, Statistics NZ has conducted a number of reviews of sources and methods relevant to the measurement of financial services with a view to adopting the recommended standards. Since the last evaluation the following events have prompted a further reconsideration of the current measurement practices:

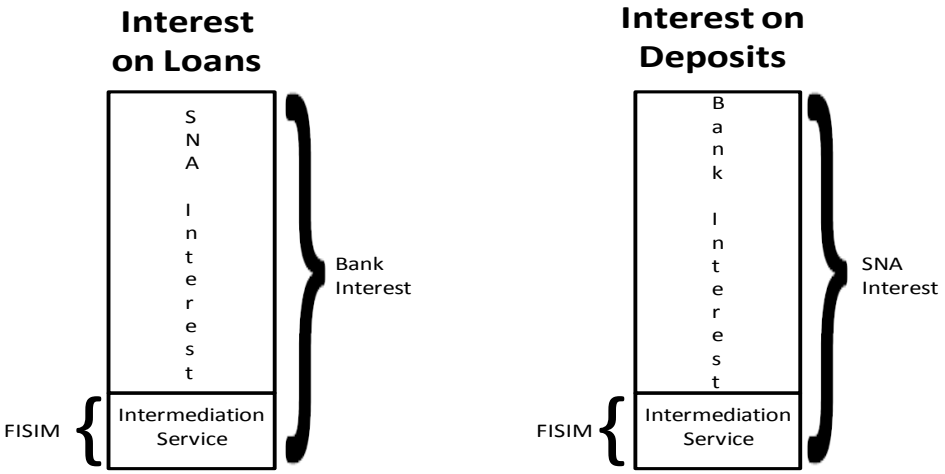
a) The 2008 version of the SNA (Commission of European Communities, IMF, OECD, United Nations, World Bank,2008) has been released which includes statements that clarify the required measurement standards.
b) There have been a number of methodological developments at Statistics NZ that enable closer matches of data sources with conceptual standards, particularly with the developments associated with the compilation of the Institutional Sector Accounts (ISAs).
c) Adopting the recommended treatment of financial services has been desirable in terms of international comparability since the release of the 1993 version of the SNA. Since the last Statistics NZ evaluation of measurement practices a number of other national accounts compilers have adopted the recommended treatment.

This paper examines the conceptual standards relevant to the current practices and the recommended alternative approach to the measurement of financial services. The effect on relevant economic variables when adopting the alternative approach is also estimated within the overall framework of the System of National Accounts (SNA).

The separation of interest flows and definition of FISIM

The central aspect of the preferred measurement standards is the categorisation of interest flows in order to reflect the service and property income components separately (see figure 1). The separation of the components is established through the notion that financial institutions charge an additional amount of interest on loans that represents the value of a service delivered to the borrower. Also a service charge is deducted from the interest that is paid on the deposits held with the financial institution.

Figure 1 – Recommended measures of interest flows



This representation of the distinction between SNA interest and bank interest[3] is also underpinned by the notion that there is a common rate of interest, defined as the reference rate, which applies to both borrowers and lenders and is the basis of determining interest property income (ie SNA interest). In this respect the reference rate can be considered to be the rate which would apply between lenders and borrowers without the existence of the financial intermediary[4].

The FISIM element is derived from the difference between rates associated with bank and SNA interest. This is stated in the definition of FISIM in paragraph 6.163 of the 2008 SNA as follows:

"The difference between the rate paid to banks 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)"

The specifications of the standards prescribe a measurement of FISIM for interest flows through financial intermediaries while no FISIM element is measured for the other flows. The boundaries of the financial intermediaries sector and the activity of financial intermediation are defined within the SNA standards. This establishes a basis to measure relevant transactions; in this case interest flows between financial intermediaries and the economic agents with which they transact. The groups of economic agents transacting with financial intermediaries are themselves defined within the SNA standards and are a key part of the fundamental basis of the measurement system. The groups of agents are classified into institutional groups and are defined as institutional sectors (Households[5], Non Profit Institutions Serving Households (NPISH), Producer Enterprises, Government and Rest of World) based on a set of defining characteristics.

The reference rate

The notion of a reference rate as the basis for partitioning FISIM and the property income element is specifically defined in paragraph 6.166 of the 2008 SNA:

"The reference rate to be used in the calculation of SNA interest is a rate between bank interest rates on deposits and loans"

and:

"The reference rate should contain no service element and reflect the risk and maturity structure of deposits and loans"

[3] The components of interest as described and represented in figure 1 are specified in paragraph 6.164 of the 2008 System of National Accounts (Commission of European Communities, IMF, OECD, United Nations, World Bank, 2008).

[4] See "What is FISIM?" developed by Robin Lynch of the World Bank, and published on the United Nations Statistical Division website as part of the regular "SNA News and Notes" series.

[5] Housing loans made to the Households sector are distinguished from the rest of the sector. The reason for this is explained on page 13 of this paper.

The standards provide no specification of what actual financial market activity would represent interest rates without a service element. Compilers of national accounts internationally have considered several possibilities as the practical basis to determine the reference rate. Observable rates within the financial markets such as interbank rates, base rates set by the central bank, or government bond yields have been considered to be representations of interest without a service element, and have been adopted as the reference rate as for calculating FISIM.

Observed rates which are considered to represent the reference rate have the potential to be above the overall loan rate or below the overall deposit rate. In these instances the calculated result of the service element is negative. A negative value for FISIM is considered to be implausible, and has raised widespread issues for national accounts compilers internationally[6] since the 2008 Global Financial Crisis.

In trialling a number of observed rates as potential representations of the reference rate, Statistics NZ also found that negative FISIM on either loans or deposits occurred in a number of periods. Also there was a high degree of volatility within the components of FISIM.

A midpoint between the loan and the deposit rate is an alternative to using an exogenously determined reference rate. The use of a midpoint assumes that the service element is equally shared between the borrower and depositor. In the absence of evidence that either party uses the services of financial intermediaries more than the other, this is proposed to be a viable approach.

This approach also has some practical advantages. For instance, there is more stability in the rate margin implicit within the service element and also a higher degree of transparency. A number of other national accounts compilers (eg the Australian Bureau of Statistics and Statistics Canada) use midpoints in the calculation of FISIM.

The midpoint is specific to the economic agent using the intermediation service, attributable to either a loan or deposit. This paper focuses on determining FISIM on an institutional sector basis, with the relevance of these sectors being outlined further in the next section titled “Allocation of FISIM to the Institutional Sectors”. In the case of calculating the FISIM applying to deposits held by a specific sector, it is the midpoint of the average rate that accrues to those deposits and the average rate applying to all loans. Equally, for calculating FISIM on loans to a given sector the reference rate is the midpoint between the rate paid on those loans and average rate for all deposits. The midpoint between a sector-specific interest rate and an average rate that applies to all non-financial sectors reflects the fungible nature of money within a financial institution. In this respect money deposited by one sector can be loaned to any sector without any traceable connection between the lender and borrower.

[6] See *An Enhanced Methodology of Compiling Financial Intermediation Services Indirectly Measured (FISIM)* released by the OECD Working Party on National Accounts in September 2008.

The calculation process to determine the midpoint reference rates, applying to each sector to both lenders and borrowers using the services of financial intermediaries, is demonstrated in Table 1 below[7]:

Table 1 – Illustrative calculation of midpoint reference rates

	Deposit actual rate	Loan actual rate		Deposit reference rate	Loan reference rate
Household consumer	5.00%	8.00%		5.77%	6.13%
Household home owner	N/A	6.00%			5.13%
NPISH	5.00%	8.00%		5.77%	6.13%
Producer Enterprises	5.00%	7.00%		5.77%	5.63%
Government	5.00%	6.00%		5.77%	5.13%
Rest of World	3.00%	7.00%		4.77%	5.63%
Weighted Average Rate	4.26%	6.53%		5.40%	5.40%

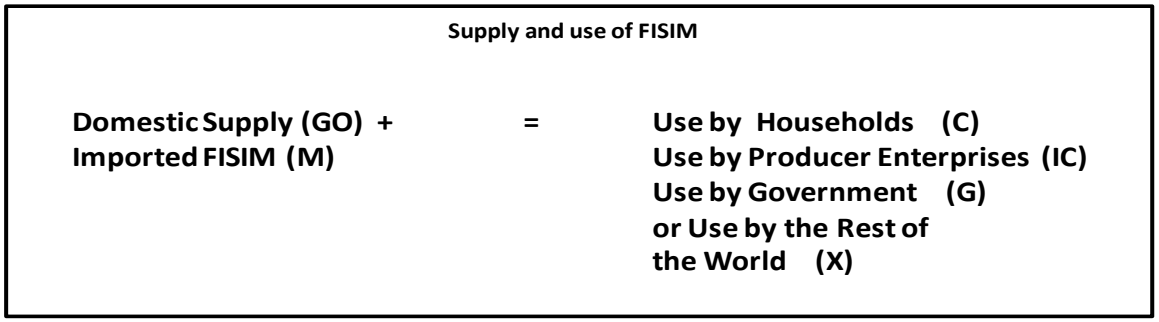
All of the FISIM calculations presented in the following parts of this paper use midpoint rates specific to the loans and deposits at an institutional sector level.

Allocation of FISIM to the Institutional Sectors

Following the preferred standards allows the use of FISIM to be classified as final as well as intermediate consumption. The distinction between final and intermediate consumption is ultimately determined by which institutional sector is using the service[8]. This contrasts with the current measurement standards where intermediate consumption is considered to be the only possible use category.

The first consideration relevant to the allocation is that the total supply of FISIM must be used by one of the institutional sectors as outlined below[9]:

Figure 2 – Supply and use of FISIM



[7] For example, the midpoint reference to be applied to household deposits is 5.77 percent as this is the average of 5.00 percent being earned on these deposits and the weighted average loan interest rate for all sectors of 6.53 percent.

[8] See paragraph 2.103 the 2008 System of National Accounts (Commission of European Communities, IMF, OECD, United Nations, World Bank, 2008).

[9] FISIM used by Non Profit Institutions Serving Households (NPISH) is a separate sector but is considered to be final use on behalf of households in order to simplify the explanation.

The abbreviation and rearrangement of the supply and use elements shows that the division of financial intermediation services between final and intermediate consumption leads to an increase in the production and expenditure measures of GDP.

Figure 3 – FISIM allocation and the effect on GDP

GO + M	**=**	**C + G + X + IC** **(Final Use) (Intermediate Use)**
GO – IC ↓	**=**	**C↑ + G↑ + X↑ – M**
(GDP Production Measure)↑	**=**	**(GDP Expenditure Measure)↑**

The explanation in figure 3 highlights the need to establish measurements of interest transactions between New Zealand financial intermediaries (referred to as banks for simplicity within figure 4) and the institutional sectors. The following diagram represents these interest transactions at a sector level which are relevant to the measurement of FISIM.

Figure 4 – Interest flows with a FISIM element

Has FISIM element and involves NZ banks (supply is from domestic production)
Has FISIM element and involves non-resident banks (supply is from imports)
Excluded from scope of FISIM

Interest Flows From	Interest Flows To: NZ Bank	NZ Households	NPISH	NZ Producer Enterprises	NZ Government	ROW Non Banks	ROW Banks
NZ Bank	Zero FISIM (3)	Flow 5 - Final Consumption Deposit FISIM	Flow 4 - Final Consumption Deposit FISIM	Flow 3 - Intermediate Consumption Deposit FISIM	Flow 2 - Final Consumption Deposit FISIM	Flow 1 - Total Export Deposit FISIM	
NZ Households Housing	Flow 6 - Intermediate Consumption Loan FISIM	No Banks Involved					Flow 21 - Intermediate Consumption Loan FISIM
NZ Households Non Housing	Flow 7. - Final Consumption Loan FISIM						Flow 20 - Final Consumption Loan FISIM
NPISH	Flow 8 - Final Consumption Loan FISIM						Flow 19 - Final Consumption Loan FISIM
NZ Producer Enterprises (1)	Flow 9 - Intermediate Consumption Loan FISIM						Flow 18 - Intermediate Consumption Loan FISIM
NZ Government (2)	Flow 10 - Final Consumption Loan FISIM						Flow 17 - Final Consumption Loan FISIM
ROW Non Banks	Flow 11 - Export Loan FISIM					Outside NZ Economy	
ROW Banks	Flow 12 - Intermediate Consumption Deposit FISIM 4)	Flow 13 - Final Consumption Deposit FISIM	Flow 14 - Final Consumption Deposit FISIM	Flow 15 - Intermediate Consumption Deposit FISIM	Flow 16 - Final Consumption Deposit FISIM		

(1) bonds issued by producer enterprises but owned by banks treated as loans to producer enterprises
(2) treasury bonds and claims on the central bank are excluded from loans to the government
(3) borrowing and lending between NZ resident banks is considered to involve a negligible service element
(4) treated as a deposit held by non-resident bank to be consistent with treatment of the interbank element of flow 1.

The standards prompt interest transactions with the Rest of World sector to be treated in ways that are not initially obvious. The measurement standards allow all interest payments by domestic financial intermediaries on deposits held by non-residents to be treated as a single total, which is represented as flow 1 in Figure 3. This is in contrast to the treatment of payments to domestic financial intermediaries on loans to non-residents being represented as two separate flows (flows 11 and 12). In the event that interest flows occur between financial intermediaries from one economy to another, a specific measurement standard is required because the loan of one institution is also the deposit of the other. Without a standardised treatment both institutions would export a service to each other on the loan and deposit. The publication of the 2008 SNA[10] provided the arbitrary guidance in order to establish that all interbank positions are to be considered a deposit of the institution paying the interest. All results in this paper are presented on the basis of this standard prior to wider consideration of specific economic meaning of that component of FISIM.

There is also a FISIM element to interest payments to and from non-resident financial institutions (represented as FISIM imports derived from flows 12 to 21). A discussion of data sources available for these estimates is included in section titled “Proposed data sources”.

There are other interest flows that occur without the involvement of the financial intermediation sector (eg hire purchase agreements and corporate bonds), and there is no economic distinction between the flows inside and outside the sector. However, it is the convention in the SNA that FISIM apples only to financial intermediaries. The significance of the interest flows outside the financial intermediation sector is shown in figure 6 and discussed further in that section.

Quantification of interest flows between financial intermediaries and the other institutional sectors is the first essential data input for calculating the FISIM component of the total interest flow. As outlined above, the sector level provides the basis for allocating FISIM to their respective types of use, however for some flows a means of determining an industry split will be necessary for calculating GDP at the industry level. This point is covered further in the section titled “Proposed data sources”. The other essential data inputs to calculate and allocate FISIM are an interest yield (also generically referred to as the interest rate in this document) and the relevant stock of loans and deposits associated with the rate. The latter two inputs are also implicit elements in the interest flows.

These essential inputs are the elements required for the calculation of FISIM and define the level at which the initial calculation is required.

[10] The specific reference to this measurement standard can be found in paragraph 11.57 of the 2008 SNA. (Commission of European Communities, IMF, OECD, United Nations, World Bank, 2008).

The calculation of FISIM

The algebraic definition of FISIM is stated in paragraph A3.24 of the 2008 SNA and applies to the New Zealand economy as follows:

FISIM = (rl – rr)*Yl + (rr – rd)*Yd

Where:

rl = average loan interest rate

rd = average deposit interest rate

Yl = the stock of loans made by New Zealand Financial Intermediaries

Yd = the stock of deposits held by New Zealand Financial Intermediaries

rr = the reference rate

The stock of loans and deposits are expected to be reported as assets and liabilities on the balance sheet of the individual financial corporations. These balance sheet items are logically also characterised by having an interest flow attached. The characteristics and specific definitions (chiefly contained within chapter 11 of both the 1993 SNA and 2008 SNA) of loans and deposits exclude shareholder liabilities and non-financial assets.

The treatment of securities requires further investigation. In some cases they appear to have all of the basic characteristics of a loan or deposits that are described above. However the main distinguishing characteristic between a security (whether owned or issued by a financial institution) and a loan or deposit is that the former is tradable while the latter has a non-negotiable redemption value. The full consequence of the changing values of security instruments in terms measuring FISIM is not yet entirely clear, although the technique deriving interest flows from applying a high level rate to a high level stock may well be influenced by the presence of security values in either variable. Also, it needs to be borne in mind that many of the data inputs make no distinction between securities and other financial instruments.

The variables required for the FISIM calculation at the institutional sector level provides the framework for the requirement in terms of data sources, as outlined in the ‘Proposed data sources’ section of this paper.

Illustration of FISIM calculation

To illustrate the relationship between relevant variables within the framework of the SNA, the following section works through a simplified set of hypothetical values relevant to the calculation and allocation of FISIM.

The following table illustrates a possible sector breakdown of the value of deposits and loans held within all financial intermediaries, and the interest rate which applies to these interest bearing assets and liabilities.

Table 2 – Illustrative loans and deposits within a Financial Intermediation sector

	Deposit stock ($)	Loan stock ($)		Deposit actual rate	Loan actual rate		Deposit reference rate	Loan reference rate
Household consumer	370	42		5.00%	8.00%		5.77%	6.13%
Household home owner	N/A	524		N/A	6.00%			5.13%
NPISH	20	1		5.00%	8.00%		5.77%	6.13%
Producer Enterprises	220	420		5.00%	7.00%		5.77%	5.63%
Government	20	10		5.00%	6.00%		5.77%	5.13%
Rest of World	370	53		3.00%	7.00%		4.77%	5.63%
Total	**1000**	**1050**						
Weighted Average Rate				4.26%	6.53%		5.40%	5.40%

Applying the actual and reference rates in table 2 to the stocks of loans and deposits leads to the values of bank interest and SNA interest. Deducting bank interest from SNA interest is the value of FISIM on deposits and deducting SNA interest from bank interest is the value of FISIM on loans.

Table 3 – Calculation of FISIM

	Deposits				Loans		
	Bank interest ($)	SNA interest ($)	FISIM ($)		Bank interest ($)	SNA interest ($)	FISIM ($)
Household consumer	18.50	21.33	2.83		3.36	2.57	0.79
Household home owner	N/A	N/A	N/A		31.44	26.88	4.56
NPISH	1.00	1.15	0.15		0.08	0.06	0.02
Producer Enterprises	11.00	12.69	1.69		29.40	23.65	5.75
Government	1.00	1.15	0.15		0.60	0.51	0.09
Rest of World	11.10	17.63	6.53		3.71	2.98	0.73
Total	**42.60**	**53.96**	**11.36**		**68.59**	**56.66**	**11.93**

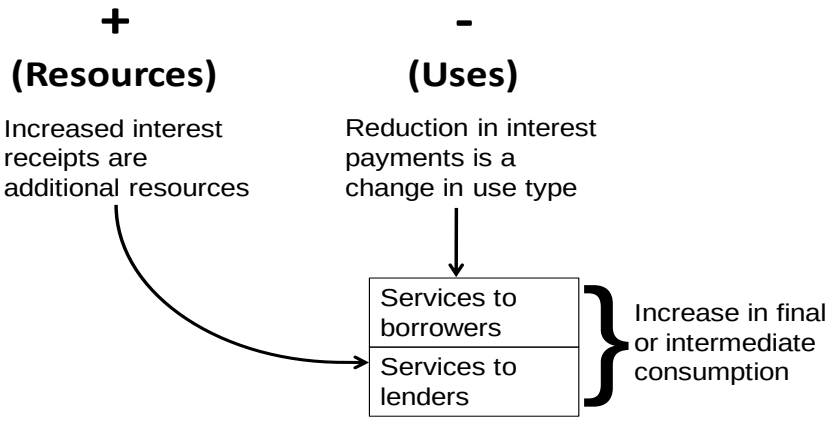
Illustration of FISIM Allocation and the Impact on National Accounts Variables

The impact on the fundamental variables within the National Accounts framework can be shown through analysing the changes that will occur within the Institutional Sector Accounts.

The common result for each of the non-financial institutional sector accounts is that the effects flow from the replacement of bank interest with SNA interest. Changes in interest receipts result in increased resources of the relevant sector account and a reduction in uses in the case of interest payments. Each of those changes to interest flows contributes an increase to the category of use that is associated with the activity of the institutional sector. For there to be complete allocation of the service element of interest, the negative effects on

the accounts must match the positive effects. This also means that net-savings of the sector account remains unchanged. The following diagram illustrates the general effect on a non-financial sector:

Figure 5 - Effect on Non-Financial Institutional sector accounts



Using the results of our illustrative example, the following table shows the consequential changes that would occur within the households sector account:

Table 4 - Changes to the Households sector accounts

Household sector account			
	Current ($)	**Proposed ($)**	**Change ($)**
Household sector - consumers			
Resources			
Interest receipts	18.50	21.33	2.83
Uses			
Interest payments	3.36	2.57	-0.79
Household Final Consumption Expenditure (HFCE)		+3.62	3.62
Change in resources less change in uses			0.00
Household sector - housing			
Resources			
			0.00
(no resource changes)			
Uses			
Interest payments	31.44	26.88	-4.56
Intermediate Consumption (IC)		+4.56	4.56
Change in resources less change in uses			0.00

In terms of the households sector, the sum of FISIM on household deposits and consumer loans is allocated to HFCE and the FISIM on housing loans is allocated to intermediate consumption. Residential properties owned by the household sector and occupied by the owner are treated as a notional industry producing rental services[11] and therefore the FISIM element is considered to be an input of this industry rather than a service consumed by households.

The remaining non-financial sectors (NPISH, Producer Enterprises, Government and Rest of World) have similar results as illustrated above. The specific impact in relation to interest flows from Table 3 on each of those sectors, and the Financial Intermediaries sector, is illustrated and explained in the appendix to this paper.

A summary of total FISIM is allocation in our illustrative example is as follows:

Table 5 – Summary of FISIM uses

Use category	FISIM uses ($)
Household Final Consumption Expenditure	3.62
Intermediate Consumption - household sector	4.56
Non-Profit Final Consumption Expenditure	0.17
Producer Enterprise Intermediate Consumption	7.44
Government Final Consumption Expenditure	0.24
Exports to Rest of World	7.26
Total FISIM allocated	23.29
Total FISIM allocated to final uses (increase in GDP)	11.29

Proposed Data Sources

The following section considers the data needs in a wider context of measuring FISIM within the national accounts framework.

Domestically Produced FISIM

In all cases FISIM produced domestically involves an interest transaction with a New Zealand financial intermediary. Investigative work to date has shown that an aggregated stock of loans and deposits, representative of all New Zealand financial intermediaries, can be derived from financial institutions balance sheet data collected and published by the Reserve Bank of New Zealand (RBNZ). The published dataset also includes a basis for establishing a complete breakdown of loans with and deposits held by institutional sectors. In order to be consistent with the SNA definitions of the institutional sectors it is sometimes necessary to allocate industry totals to sectors using proportions established from the Statistics NZ Annual Enterprise Survey (AES).

[11] This treatment is a long-standing national accounts convention, primarily for the purposes of being able to compare results between countries with high home ownership rates with those with low home ownership rates.

Measures of interest yields are generally considered to be the best proxy for the interest rate required in the FISIM calculation. The RBNZ publishes an overall yield rate of funding and claims (broadly representative of deposits and loans, respectively) denominated in New Zealand currency. These aggregate rates provide a useful basis to establish a control total, however, other information about rate differentials are needed to establish a more appropriate estimate of interest rate specific to a sector. Also, because the aggregate rates apply only to New Zealand Dollar balances, they are appropriate only to measuring flows between New Zealand financial institutions and domestic sectors.

An estimate of the New Zealand financial institutions stock of loans advanced to and deposits held by the Rest of World sector can be derived from the RBNZ balance sheet data, however the best estimate of the associated interest rate appears to be from the Statistics NZ Quarterly International Investment Survey (QIIS). There is potential for the yield derived from QIIS to be volatile because of mismatches between interest flows and asset or liability values. The time series of interest rates are confronted against published wholesale rates (e.g. LIBOR[12]) and timing adjustments applied where appropriate.

Imported FISIM

Imported FISIM occurs when a non-resident financial institution and a New Zealand resident are the counterparties in an interest transaction. The QIIS is well designed to measure the stock and associated interest flow for various types of asset and liabilities held with the Rest of World sector, however does not have a direct means of determining whether the non-resident counter-party is a financial institution or some other entity. The survey provides coverage of all corporate entities, so therefore provides the closest link to imported FISIM by the non-profit, corporate producer and the government sectors. The survey also provides a breakdown by various asset and liability types, and this information provides an indication of whether the asset or liability is more or less likely to have a counter-party which is a financial institution.

Households are not covered by the QIIS; however, this survey data forms the basis of estimating total interest flows that are included in the relevant parts of the Institutional Sector Accounts. Aggregated tax data supplements the total investment income flows recorded by the QIIS, which accounts for household income and expenditure flows included in the aggregates published in the Rest of World account. This supplementary source provides a measure of total overseas income received by households. Therefore, other data within the Household Sector Accounts is needed for an informed and consistent estimate of the proportion of total household income that is made up of interest. This data also provides the basis for estimating household interest payments to the Rest of World sector.

Industry Dimension of FISIM

An industry breakdown of the estimate for FISIM use by the Non-Profit, Corporate, and Government sectors is required. Industry proportions of interest receipts and payments of industries within each sector can be derived using the AES datasets, and these proportions

[12] LIBOR (London Interbank Offered Rate) is based on the rates on which banks borrow unsecured funds from other banks in the London wholesale market. This rate does not provide an absolute measure of interest yields applying to overseas transactions of New Zealand financial intermediaries but is expected to influence the pattern of yields over time.

applied to sector totals of FISIM. This apportionment approach would account for different industries paying interest at different rates only to some extent. Alternatively, estimates of the variables required for a FISIM calculation at the industry level are being considered. Investigations to date suggest that there is some data available to take the second approach. However, this would mean estimating results at a high industry-classification level and interest rate differences between industries would remain uncertain.

Volume Measures and Deflation Implications of FISIM

The current methods for the measurement of financial services output require an indicator of volume changes which is based on the changes in the inflation adjusted stocks of loans and deposits. This treatment reflects that interest rates themselves are a change in price and not volume. This principle will remain unchanged in implementing the preferred approach.

An update of the weights will be required with some price indices. For example, the intermediate consumption values of each industry will include FISIM. Likewise the deflators applying to Household, Non Profit, Government and Net Exports, which contribute to the expenditure measure of GDP, will need a similar revision of the weights.

Values of FISIM Based on Proposed Sources

In order to provide a more specific illustration of FISIM values in the New Zealand context, the totals for sector use of domestically produced FISIM have been estimated based on the proposed sources outlined above. The years 2005 and 2006 have been chosen as two years with relatively complete data available in terms of the proposed sources, and because they represent years when the financial markets were relatively stable. Subsequent years have shown large changes in overall interest rates, and volatility in interest rate relativities between the sectors which require an even greater degree of investigation and evaluation.

Table 6 - Calculations of FISIM uses from New Zealand Financial intermediary data

	2005 ($m in Current Prices)	2006 ($m in Current Prices)
Household Final Consumption (FISIM on Flow 5 and 6)	1011	1034
- % of Total domestic FISIM	20%	17%
Household Intermediate Consumption (FISIM on Flow 7)	1389	1643
- % of Total domestic FISIM	28%	28%
Producer Enterprise Intermediate Consumption (FISIM on Flow 3 and 9)	1398	1689
- % of Total domestic FISIM	28%	29%
NPISH Final Consumption (FISIM on Flow 4 and 8)	46	50
- % of Total Domestic FISIM	1%	1%
Government Final Consumption (FISIM on Flow 4 and 8)	89	94
- % of Total domestic FISIM	2%	2%
Export Deposit FISIM (FISIM from Flow1)	981	1326
- % of Total domestic FISIM	19%	22%
Export Loan FISIM (FISIM from Flow 11)	19	16
- % of Total domestic FISIM	0%	0%
Import Loan FISIM Involving NZ Bank (FISIM on Flow 12)	109	71
- % of Total domestic FISIM	2%	1%
Total Allocated Domestic FISIM ($NZ m)	5043	5922
Total Published Bank Service Charge (BSC) ($NZ m)	5139	5907

The BSC is equivalent in concept to total domestically produced FISIM. Therefore, the discrepancy between the independently calculated FISIM values and the BSC, calculated from net interest flows involving financial intermediaries, has the potential to provide some indication of the coherence of the result.

In the early stages of investigating the specific data sources, applying the percentages from the independently calculated FISIM values to the published BSC would provide the best indication of the impact that allocating domestically-produced FISIM has on GDP.

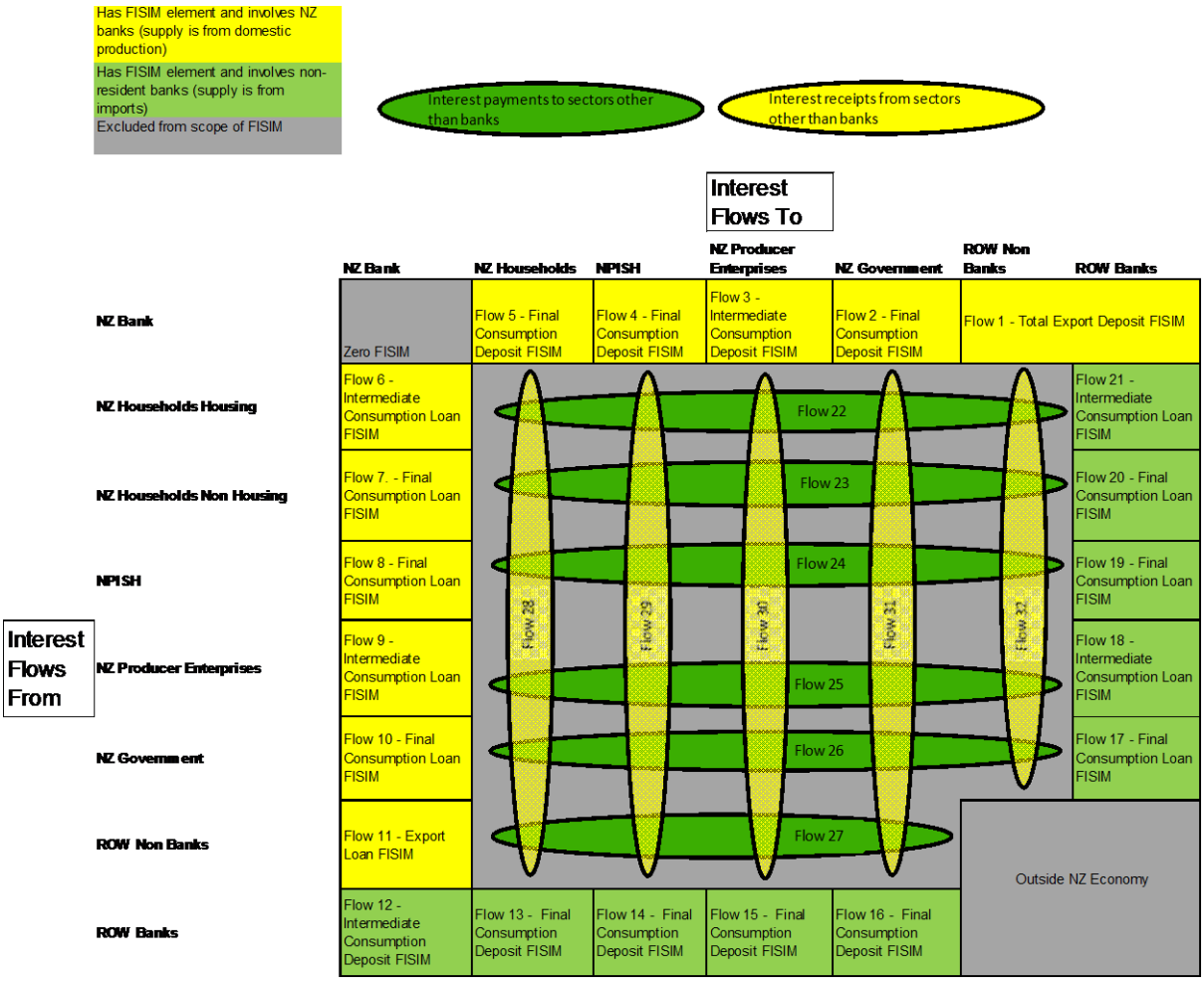
Table 7 - Estimate of the impact on GDP from the allocation of domestic FISIM

	2005 ($m in Current Prices)	2006 ($m in Current Prices)
Proportion of FISIM Allocated to Intermediate Consumption	55%	56%
Proportion of FISIM Allocated to Final Uses	43%	43%
Estimate of Increase in GDP due to the Allocation of Domestic FISIM	2187	2513
Published Current Price GDP	152038	160573
Percentage Increase in GDP due to the Allocation of Domestic FISIM	1.4%	1.6%

Wider consideration of interest flows not including Financial Intermediaries

Adding additional flows to figure 4 provides an outline of the degree to which an evaluation of total interest flows is possible.

Figure 6 - Categorisation of all interest flows



The presentation of interest flows in Figure 6 enables a more transparent link between interest flows reported in the Institutional Sector Accounts and the interest flows relevant to the calculation of FISIM. The following table illustrates these links:

Table 8 - Disaggregation of interest flows reported in the Institutional Sector Accounts

Institutional Sector Account Interest Flows	Flows Indentified in Figure 4	Relevance to FISIM
Receipts by Households Sector	Flow 5	Domestically Produced FISIM
	Flow 28	No FISIM element
	Flow 13	Imported FISIM
Payments by Households Sector	Flow 6 and 7	Domestically Produced FISIM
	Flow 22 and 23	No FISIM element
	Flow 20 and 21	Imported FISIM
Receipts by Non Profit Sector	Flow 4	Domestically Produced FISIM
	Flow 29	No FISIM element
	Flow 14	Imported FISIM
Payments by Non Profit Sector	Flow 8	Domestically Produced FISIM
	Flow 24	No FISIM element
	Flow 19	Imported FISIM
Receipts by Producer Enterprise Sector	Flow 3	Domestically Produced FISIM
	Flow 30	No FISIM element
	Flow 15	Imported FISIM
Payments by Producer Enterprise Sector	Flow 9	Domestically Produced FISIM
	Flow 25	No FISIM element
	Flow 18	Imported FISIM
Receipts by General Government Sector	Flow 2	Domestically Produced FISIM
	Flow 31	No FISIM element
	Flow 16	Imported FISIM
Payments by General Government Sector	Flow 10	Domestically Produced FISIM
	Flow 26	No FISIM element
	Flow 17	Imported FISIM
Receipts by Rest of World Sector	Flow 1	Domestically Produced FISIM
	Flow 32	No FISIM element
	Flow 17 to 21	Imported FISIM
Payments by Rest of World Sector	Flow 11	Domestically Produced FISIM
	Flow 27	No FISIM element
	Flow 12 to 16	Imported FISIM

Guidance for interpretation of the results

The primary purpose of this paper is to clarify the conceptual basis of FISIM measurement. The very high level results from New Zealand data have been included to assist the illustration of these concepts.

When evaluating the 2005 and 2006 results in relation to the following years, it should also be noted that the Global Financial Crisis caused unprecedented volatility in the proposed data sources. The resulting impact on FISIM is not fully established at this stage.

The revisions analysis provided by compilers of GDP for other economies implementing the preferred standards shows that the level of GDP typically rises in the order of 1 to 2 percent. A recent publication of results illustrating the revision impact as a result of changing from the notional industry measurement standard to the 1993 SNA preferred standard is the UK Office for National Statistics' 2008 publication[13] of the UK National Accounts.

[13] See "Overview of UK National Accounts and Balance of Payments: Blue Book and Pink Book 2008" (Meader and Tily, 2008).

Implementation Plans

Inclusion of FISIM estimates within the New Zealand national accounts and the other relevant economic data outputs is planned for completion by March 2013. While it is conceivable in many cases that the consequential output is a simple case of flowing through the new results and accounting for FISIM estimates using the existing systems, there are some other fundamental changes (system redesign to accept new variables, classification updates, resolving data continuity issues, etc) that will be required. The needs of other development initiatives and unforeseen events may also influence the eventual implementation timing.

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Appendix – Effect on other institutional sector accounts

The impact on the Private Non-Profit Organisations Serving Households (NPISH) Sector Account is illustrated in the following table:

Table A1 - Changes to the NPISH Sector Accounts

NPISH sector account			
	Current ($)	**Proposed ($)**	**Change ($)**
Resources			
NPISH industry output		+0.17	0.17
Interest receipts	1.00	1.15	0.15
Uses			
NPISH industry intermediate consumption		+0.17	0.17
Interest payments	0.08	0.06	-0.02
NPISH final consumption expenditure		+0.17	0.17
Change in resources less change in uses			0.00

For the NPISH sector, the initial impact of FISIM allocation is through the production account where intermediate consumption increases and output increases by the same amount, as non-market output is by convention measured as the sum of costs. The increase of final use within the income and outlay account represents the costs of services considered to be used by the non-market sector itself on behalf of the community.

The producer enterprise and government sectors (a non-market sector) have analogous treatments as shown in the tables 4 and A1.

Table A2 - Changes to the Producer Enterprise sector accounts

Producer Enterprises sector account			
	Current ($)	**Proposed ($)**	**Change ($)**
Resources			
Interest receipts	11.00	12.69	1.69
Uses			
Producer Enterprise industry intermediate consumption		+7.44	7.44
Interest payments	29.40	23.65	-5.75
Change in resources less change in uses			0.00

Table A3 - Changes to the General Government sector accounts

General Government sector account			
	Current ($)	**Proposed ($)**	**Change ($)**
Resources			
Government industry output		+0.24	0.24
Interest receipts	1.00	1.15	0.15
Uses			
Government industry intermediate consumption		+0.24	0.24
Interest payments	0.60	0.51	-0.09
Government final consumption expenditure		+0.24	0.24
Change in resources less change in uses			0.00

In practice the interest flows to and from the Rest of World involve a number of less intuitive results for FISIM which are outlined in the text following figure 4. In terms of presenting a simplifying illustrative case, the following table represents the outcome when imports of FISIM, and the associated interest flows, are not accounted for and no loans to non-residents involve other financial intermediaries.

Table A4 –Changes to the Rest of World sector accounts

Rest of World sector account			
	Current ($)	**Proposed ($)**	**Change ($)**
Resources			
Interest receipts	11.10	17.64	6.54
Uses			
Interest payments	3.71	2.98	-0.73
Exports		+7.26	7.26
Change in resources less change in uses			0.00

The last sector account which is affected by moving to the recommended measurement standards is the financial intermediary sector itself. The changes in interest flows represent the difference between total bank interest and the total of the equivalent SNA interest property income. The other major change to the Financial Intermediary Sector Account is the removal of the adjustment for the Bank Service Charge (BSC). The BSC is quantified

as the net of bank interest receipts over payments of the sector[14] which equates to total FISIM in concept. The calculation of the BSC does not take into account the property income from financial institutions lending of own funds and therefore this result is less than total bank interest receipts less payments.

Table A5 - Changes to the Financial Intermediaries sector accounts

Financial Intermediaries sector account			
	Current ($)	**Proposed ($)**	**Change ($)**
Resources			
Interest receipts	68.59	56.66	-11.93
Uses			
Interest payments	42.60	53.96	11.36
Bank Service Charge (equal total FISIM in Table 5)		-23.29	-23.29
Change in resources less change in uses			0.00

Within the current measurement standards the BSC is treated as a single deduction as this is deemed to be the intermediate consumption of a notional industry, which offsets the total excess interest receipts over payments. When moving to the recommended measurement standards, the BSC adjustment is accounted for within more appropriate use categories recorded in the accounts of the sectors using the service.

[14] See paragraph 6.33 of the 1968. A System of National Accounts (United Nations, 1968).