



Statistics
Canada

Statistique
Canada

On the Mechanics of Measuring the Production of Financial Institutions

Milan Jayasinghe, Ph.D.
Senior Economist
System of National Accounts Branch
RHC 23, Statistics Canada
Tunney's Pasture, Ottawa, Ontario
Canada. K1A 0T6

Tel : +1 613 951 5209 Fax: +1 613 951 0489
E-mail: milan.jayasinghe@statcan.ca

JEL Classification: G21, L23

*Abstract **

With the emergence of new technologies, innovative financial instruments and the integration of global market operations national accountants are confronted with a series of new challenges and complexities in determining the output of financial institutions.

The SNA93 recommended measure, the FISIM – financial intermediation services indirectly measured - which focused around the traditional deposits and loans business is currently under scrutiny as numerous views have been expressed questioning its validity in measuring the financial output. Critics have argued that the FISIM, as is defined, fails to capture the recent developments in financial markets and the technological advances and thus undermine the true economic contribution of these institutions. Several OECD task groups have examined this issue and currently considering changes to the existing methodologies.

The goal of this study is two-fold. First, it explores a number of emerging areas in finance that are critically important for national accounting purposes. Second, by using the latest I-O tables the paper examines empirically how the recent technological advances and the global market environment have impacted the Canadian financial sector and provides some insights as to how the current SNA practices could be extended to account for such changes.

* The views expressed in this paper are of the author and do not necessarily represent those of Statistics Canada.

Introduction

The measurement of the “true economic value” of the services produced by financial institutions has always been a challenge for national accountants. For the most part, the complexities associated with the nature of activities that these institutions are involved in and their complex links with almost every sector of the economy have made it difficult to successfully design a standardized method for meeting this challenge and to estimate their contribution to the economy. In an attempt to provide rigor and consistence to several available options for national accountants, the System of National Accounts 1993 (SNA93) introduced a concept called the “*financial intermediation services indirectly measured (FISIM)*” – a term very familiar to national accountants by now as a measure intended to approximate the value of economic activity generated by financial institutions. Since the passage of the SNA93, the financial institutions, most notably over the past decade, have been subject to numerous restructuring both in terms of the ways in which they do business and the means they use to provide their services to clients. Furthermore, the emergence of the new financial instruments coupled with the globalization of banking activities have brought the issue of measuring the production of financial institutions beyond the context that the SNA93 had envisioned, posing a series of new challenges for national statistical agencies worldwide. Presently, there is an on-going discussion at the OECD ¹ to examine ways to meet these new challenges that national accounting agencies have encountered, and to recommend new measures and guidelines that would enable better accounting for the true economic contribution of this rapidly evolving sector. The primary goal of this paper is to examine a number of areas pertaining to the measurement of financial services that had been left out of the present context of the SNA guidelines and to demonstrate why it is essential that such areas should be given a careful consideration in any future revisions of the SNA guidelines.

Current Approach

The SNA93 essentially recommended two approaches to calculate and allocate FISIM among different users, namely (a) *reference rate method* and (b) *relevant financial indicators method* (pp. 6:126-131). The first approach requires a “reference rate”, often referred to as the “pure cost of borrowing”, that is, a rate of interest at which the risk premium has been eliminated to the fullest extent possible, be used in the calculation of FISIM. Once the reference rate is determined, it then be applied to calculate the spread between actual rates of interest

¹ Draft Final Report (August, 2003), OECD Task Force on Financial Services in National Accounts

receivable on assets and payable on liabilities and to allocate among different users. The second approach requires FISIM to be based on key economic indicators and the calculated value be allocated in line with financial assets and liabilities pertaining to different components of financing. A couple of important points are in order here. First, central to these recommendations is the fact that banks and other financial institutions (referred to as “banks” for short in the rest of the discussion) are viewed as “*financial intermediates*” which simply collect funds through deposits and re-channel them for financing various economic activities. Second, the term “*intermediation services*” embedded in the definition of FISIM is strictly adhered to so that any incomes generated from other sources (such as from retained earnings, stock market operations and the like) other than those arising from re-channeling of deposits are excluded from FISIM.

The above approaches to FISIM are often conceived as a reflection of the nature of financial sector activities at the time and the ways in which banks used to deliver their services to different users of the economy. Nonetheless, over the past two decades banking system has been subject to a high degree of restructuring that has led to substantial changes in the ways they do business, particularly with respect to income generation and provision of finances. Alongside this development is the discovery of a whole new generation of financial instruments. Moreover, with recent advances in information technology banks have found innovative ways to offer their services faster and more effectively. With the integration of banking activities across borders, the global market operations of banks have recorded a unprecedented growth in banking activity, particularly in areas where only a limited or no activity/access was feasible with old technologies.

[TSE graphs 1 & 2 are here]

The current SNA definition of “own funds” falls short of explaining what it meant by own funds. Since in general retained earnings along with gains from trading, mainly shares and securities and currency operations make up for the most of these funds, the subsequent discussion on if and how to treat such incomes has a direct bearing on the way one defines “own funds”. In addition, the recognition that financial services being produced must be independent of the source of funds appears to be so fundamental to the overall discussion of this paper and in particular, for the important debate on whether to include “own funds” and gains from trading of shares and securities in financial production (i.e., in FISIM).

Role of Own Funds and Capital Gains

In today’s business activity, banks are involved, as never before, in numerous financial operations, often extending their services well beyond the borders where they are initially

incorporated. Moreover, their financial statements attest to the fact that the funds they draw from deposits presently constitute only a small portion of their potential for financing while a bulk of such funds are being generated through other activities or from investments associated with their retained earnings, often referred to as “own funds” in national accounting literature, stock market operations and currency trading. Consequently, the conventional definition, as perceived by SNA93, of portraying banks as mere entities collecting deposits and re-channeling them to various clients does not appear to hold as far as the FISIM is concerned. Consequently, the notion of “financial intermediation services” embedded in FISIM needs be refurbished in order to allow for a broader and meaningful definition prior to any efforts to examine the ways to make FISIM operational again.

[Table showing components of income is here (OSFI)]

In the conventional setting (SNA93), the exclusion of incomes from other sources from the calculation of FISIM is often justified on the perception that such incomes do not seemingly have direct links to “intermediation services” that banks provide to their clients. This perception, however, appears to be flawed on two accounts. First, a careful examination of financial activities of banks, particularly in the past decade, reveal that the proportion of incomes generated by “own funds” has been accounting for an increasing share of incomes over the years as compared to that of deposit-financed loans. As a result, bulk of financing has been made possible from revenues earned from “own funds”. In these circumstances if one adheres to the current definition of FISIM it seems inevitable that the resulting estimates would undermine the true economic value of financial services contributed to economic activity. This drawback in the current definition of FISIM is more evident in good economic times, particularly in regard to investment opportunities. That is, in good economic times (most recent one was 2000-2001 period) banks tend to invest in viable ventures trying to seize lucrative investment opportunities and have been successful in generating most of funds available for finances. Moreover, such incomes generated by assets other than deposit-driven finances have given banks a leading edge in being competitive both domestically and in the global market place.

[Table and graph showing incomes from own funds and cost of funds are here]

The involvement by banks in trading activity and currency operations in the global market place have led to consolidate their financial portfolios and as a result, they have been able significantly improve their potential for providing finances at more effective and competitive rates. One may question why banks would pass any of their capital gains, for example, from stock market activity and incomes from other investments to be more competitive in the market place, lets say residential mortgages. The simple answer to that question is that banks

under such circumstances face a choice between expanding their market share and diversifying their investment portfolios by creating a proper mix of assets that ensures a stable flow of revenues into the future. In other words, from a conceptual point of view, banks confront a set of opportunities with different risk profiles and varying degrees of stability. Recent finance literature (For example, see *Fixler and Zieschang (1991, 1999)* and *McIntosh (2002)*) show that when motivated by profits the equilibrium portfolios of investments will essentially entail a provision of more competitive rates for different elements of finances. Inevitably, the degree of differences in competitiveness among banks will be a function of the potential of funds that each bank has at their disposal vis-à-vis risk profiles of different portfolios at their disposal.

[Graph showing stock market indices and FISIM under current methodology is here]

In view of these circumstances it appears that the proper definition of FISIM representing true economic contribution of today's financial institutions must consider these new avenues of incomes generated through "own funds" and their impacts on the potential for providing intermediation services towards economic activity. Since the current definition of FISIM excludes revenues generated through own funds there has been a tendency to undermine the value of the true economic activity generated by banks, particularly in good economic times. Hence it is evident that the flaw of current SNA guidelines is its failure to recognize the important role that banks "own funds" play indirectly in the provision of intermediated services.

On another account, when we consider incomes from investments with different maturity profiles, a question may arise whether one should distinguish earnings from short-term investments and long-term investments. It can be argued that such a distinction is not warranted if one could establish the links between such revenue flows and the delivery of "intermediation services". As such (as currently considered by OECD), any suggestion to include in FISIM the earnings from short-term investments (trading book) but exclude such earnings from long-term investments (investment book) becomes problematic (and might be misleading) in certain circumstances. First, in order to make the distinction we need enough information beyond currently at our disposal. Second, even if the long-term investments can be viewed as a commitment on the bank's part to 'park' funds for a specific period of time, subsequent changes in economic conditions (for example, substantial change in interest rates) may warrant financial institutions to default on long-term commitments before maturity whenever the expected gains in re-channeling such investments exceed the costs of defaulting. Hence, for the purposes of the SNA it seems more logical to include both income streams from securities irrespective of the terms of the underlying contracts.

Problems with Reference Rate Approach

According to SNA93 (6.128), the reference rate represents the pure cost of borrowing funds. In other words, this is the rate at which the risk premium has been eliminated to the greatest extent possible and the rate which does not include any “intermediation services”.² However, from a practical perspective, the problems with the “reference rate” approach soon become evident as national accountants grapple with numerous rates associated with financial instruments with varying maturity profiles. Even though the idea of having a “risk free rate” is quite appealing the practical difficulties when trying to decide on the most appropriate rate have plagued the efforts of most national accountants. The reference rate is calculated as the ratio of interest receivable on loans between resident financial intermediation to stocks of loans between resident financial intermediation. In order to determine the international portion, i.e., FISIM imports and exports, the reference rate is often defined as the weighted average inter-bank rate on loans and deposits between residents’ financial intermediation and non resident financial intermediation. The reference rate approach is a bottom-up approach and that FISIM output generated by the activity of financial intermediaries is computed as the sum of FISIM provided to different sectors and to the rest of the world. Since there is no single method of choosing reference rate statistical agencies worldwide adopt different rates as proxies for the reference rate. For example, in Canada reference rate is based on a selected mix of rates, i.e., an average rate of deposits and borrowing whereas in Europe (EUROSTAT) the calculated inter-bank rate is used as reference rate.

Perhaps one way to resolve this problem is to look at this issue from a different perspective in the sense that how much spread should be allowed between the bank lending rates and their borrowing rates and to recognize the fact that the revenues from banks’ own funds could also have a role in “financial intermediation services”. The idea that assets with different maturity profiles carry varying risk free returns seems not very convincing as such assets are “priced” in line with financial institutions expectation of future income and payment streams in a ‘risk-free’ environment irrespective of the terms of maturity. It is quite possible therefore that the observable differences in rates across assets are a mere reflection of the expected future movements of price levels (consistent with Fisher identity).

² The issue of “intermediation” arises from imperfect information on credit profiles of depositors and borrowers. The banks, having the advantage on information on their clientele have the potential for distinguishing and ranking their clients in line with their creditworthiness. Thus banks act as intermediates between depositors and borrowers and this process inevitably leads to interest rate differentials between deposits and loans, margin being the compensation for the intermediation services.

Role of Taxes

In the discussion so far we have not considered potential effects of taxation and how they relate to banks' decisions on investment and channeling funds across different finances, such as business loans, mortgages on measuring the true economic value of financial production or the FISIM. Yet, for countries like Canada where the marginal corporate tax rates are among the highest in OECD countries the investment behaviour of financial institutions and the relative attractiveness of different financial instruments have a significant bearing on the way the underlying income flows are being taxed. Accordingly, the choices of the financial institutions both in terms of providing loans and investing will be contingent upon the after-tax revenues and/or concessions that are governed by the tax regulations (to be continued in the second draft)

Proposed Approach to FISIM

It appears that the following are central to any discussion on possible extensions to the SNA93 practices in the area of financial production, particularly in defining the extent of FISIM.

- (a) The measurement of financial production (generally referred to as FISIM) must be considered independently of the sources of funds being used to generate funds by the financial institutions. For example, whether the funds have been generated through loans or from the retained earnings (own funds) should be irrelevant in the measurement of financial production
- (b) The other revenues (other than interest incomes) must also be part of the FISIM calculation. It is important to recognize circumstances where *services* are being generated (and provided) by involvement in various activities that eventually lead to these other revenues. For example, when a bank raises money by issuing its own shares or debentures the activity itself does not entail any service element. Rather it is the first step for providing a service (or enhancing the potential for providing the services by mobilization of funds). Once the funds are mobilized, then they can be channeled to various clients in the form of loans, mortgages, etc and that's the second step of the process where the service is generated. In this context it is not difficult to see how issuing own shares and rechanneling the collected funds would create production of a service that should be part of FISIM.

(c) The rationale for inclusion of other revenues as part of FISIM calculation can be looked at from another perspective. Once the funds have been mobilized by the financial institutions (regardless of the sources) then they decide the areas where they want to channel the collected funds in order to maximize their returns, which inevitably result in diversified portfolios we see in the balance sheets of today’s financial institutions. What is most important here to the national accountant is to recognize the fact that this behaviour leads to an improvement in both efficiency and competitiveness of the financial institutions as the potential for future lending at competitive rates is increased with the higher earnings (compared to a situation where financial institutions are only involved with deposits and lending). Consequently, these gains in efficiency and competitiveness will be translated into more competitive interest rates and other charges on subsequent lending by financial institutions to different clients.³ This line of reasoning provides further support for inclusion of other revenues in the calculation of FISIM.

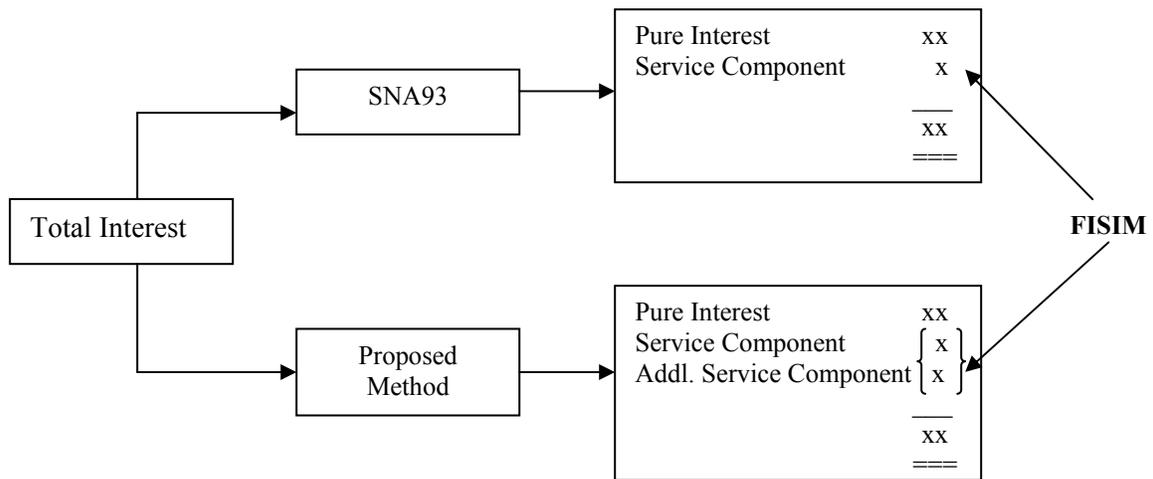


Chart 1

As shown in Chart 1, the steps outlined above will yield new FISIM estimates that consist of an additional service component resulting from the consideration of “own funds” and “capital gains” as (implicit) contributors to competitiveness of banks in providing finances to economic activity.

Empirical Appeal

³ This argument resembles the behaviour of insurance companies which heavily rely on investment incomes when deciding on premiums for different policies.

[This section is not complete] The goal here is to present evidence to show both the relevance and significance of the above noted issues on determining the “true economic value of financial services sector”. An empirical analysis using Input-Output tables for the Canadian economy for the last two decades coupled with stock market data and the data on international banking transactions is currently in progress!

Concluding Remarks

The goal of the short discussion of this paper is to highlight the importance of a number of emerging areas which have a significant bearing on the definition of FISIM - *financial intermediation services indirectly measured* - or simply put the computation of the true contribution of the financial sector to economic activity. Inevitably, the current definition (as prescribed by the SNA93) needs be modified both in line with the new technological advancements that have reshaped the ways in which financial institutions deliver their services and the increasing role of these institutions in the global market. The notion “of intermediation services” needs broadening to cater to these developments. The role of income accruing to own funds, capital gains and currency exchanges need to be given a close attention to determine the ways in which they affect financial institutions' ability to maintain competitiveness and potential as reliable contributor of the financial services needed by the economy. Since the contribution from the financial sector has been increasingly important to Canada, as national accountants/economists our ability to estimate its true economic contribution has a great empirical appeal, though a challenging one!

Data Sources and References

Annual Reports (1993-2003), six major Canadian Banks

Dow Jones Industrial Averages

Draft Final Report (August, 2003), OECD Task Force on Financial Services in National Accounts

Fixler, D. and Zieschang (1991), “Measuring the Nominal Value of Financial Services in the National Income Accounts,” *Economic Inquiry*, Vol. XXIX, pp. 53-68

Fixler, D. and Zieschang (1999), “The Productivity of the Banking Sector: Integrating Financial and Production Approaches to Measuring Financial Service Output,” *Canadian Journal of Economics*, 32(2), pp.547-569

Input-Output Tables, Statistics Canada (1990 –2001)

McIntosh, J. (2002), “A Welfare Analysis of Canadian Chartered Bank Mergers,” *Canadian Journal of Economics*, 35(3), pp.457-475

OSFI data, various years
System of National Accounts (1993)
Toronto Stock Exchange – data on trading activity