# FISIM Accounting

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# Overview

- The financial services accounting problem

- The evolution of national accountants' treatment of the problem since the 1950s

- Single versus multiple reference rates

- The SNA's critics

- Explaining the spread

- An exploration—1953/1993 synthesis

- FISIM algebra

- How it would work

- Reconnecting with neoclassical capital theory

- Conclusion

# The accounting problem

- Certain kinds of financial institutions either do not levy explicit service charges or their service charges are inadequate to cover their costs

- Instead, they cover costs and owners' profit through the spread between interest received on financial assets, notably(but not necessarily exclusively) loans, and interest paid on liabilities, notably (but not necessarily exclusively) deposits
    - **The System of National Accounts (SNA) calls services whose charging is arranged in this way Financial Intermediation Services Indirectly Measured (FISIM)**

- Problems
    - How much of the spread is an indirect service charge?
    - How should the service charge be allocated to using sectors?

# Evolution of FISIM

- **1953 SNA**
  - Total "FISIM" is the entire spread between property income (interest and dividends) received on financial assets and interest paid on deposit liabilities,
  - Allocated to using sector (intermediate & final consumption) according to sector deposits

- **1968 SNA (first time "own funds" terminology appears)**
  - Total "FISIM" like 1953 SNA, but the term "own funds" introduced for liabilities not subject to FISIM; narrow interpretation is equity capital; broad interpretation is all non-deposit liabilities, like the 1953 SNA
  - Allocated entirely to intermediate consumption of financial sector (no final consumption, lower financial sector value added): **FISIM has no impact on GDP**

- **1993 SNA (first time "FISIM" terminology appears)**
  - Total FISIM like 1968 SNA, but seems to allow a narrower interpretation of "own funds" (broader application of FISIM to non-equity liabilities rather than only deposits)
  - Allocated FISIM to using sectors (and intermediate/final consumption) with a user cost of money principle; applied to all financial assets and non-"own funds" liabilities

- **2008 SNA ("own funds" terminology disappears)**
  - Total FISIM comprises the aggregate of user cost of money margins (excluding holding gains) on financial institutions' loan and deposit instruments **only,** principally loan assets and deposit liabilities; **narrows the scope of financial instruments to which FISIM applies**
  - Allocates FISIM to using sectors according to same user cost of money margins on sector loan and deposit positions whose sum comprises FISIM output and intermediate consumption

# Single versus multiple reference rates

- The language of all versions of the SNA **presumes a single reference rate** for financial instruments, but assign certain of the user cost margins on these instruments(particularly negative margins) to inputs (particularly to primary services, i.e., operating surplus) rather than outputs
  - The rate of operating surplus is effectively the reference rate for nonfinancial assets, but, being residually determined, can differ from the reference rate applying to financial instruments

- All versions of the SNA alternatively *can be seen* as **assuming multiple financial instrument reference rates** and a residually determined internal rate of return (*IRR*)to nonfinancial assets (operating surplus)

- The issue therefore is not single versus multiple reference rates, but whether the presumed configuration of reference rates explains the spread *without hard to explain transfer/appropriation flows to financial institutions from their customers*

# The SNA's critics

- The SNA's critics—Basu, Colangelo, Fernald, Inklaar, and Wang (BCFIW)—argue that FISIM reference rates should be set for each instrument based on the equivalent security to the instrument, not some overall cost of capital
  - BCFIW have an *investment fund* view of the financial *asset side* of financial institutions; banks manage loan assets for their funders, who are entitled to all the fund's proceeds, less charges for services, so **none** of the risk premium should be considered a payment for services provided *to borrowers*
    - *The BCFIW approach thus yields very little loan FISIM*
  - However, BCFIW also apply this security-equivalent technique to the institution's *funders* on the liability side: equity holders, lenders, debt security holders, and depositors—is this liability treatment a problem?
    - In particular, the BCFIW reference rates for deposits (2/3 of liabilities in US data) are low, riskless security equivalents from a AAA money market/government bond fund, *the BCFIW approach thus yields very little deposit FISIM*:
      - Q: Is providing a risk free product to depositors costless to a bank with a risky asset portfolio?
      - Q: Depositors are buying into an institution with a risky portfolio (loans); they are willing to give up the risk premia on that portfolio to get an insured product—isn't insurance /risk bearing a financial service?
      - Bottom line: a bank deposit account is not the same thing as a AAA money market fund
    - Borrowers pay little (if any) FISIM, but funders benefit from—and asset pricing theory suggests they are risk averse and willing to pay for—asset management services maintaining a diversified portfolio
      - Even a bank's lenders and bondholders, much less its depositors, are willing to accept less monetary compensation from the asset portfolio in payment for asset management services
      - Can the BCFIW account-by-account method capture liability side charges for **portfolio level** services?

# Explaining the spread

- Through 1993, total FISIM was seen as fully exhausting the interest spread financial institutions earn.

- In 2008, the scope of total FISIM was cut back to user cost margins on the loan assets and deposit liabilities of financial institutions
    - Roughly the loan *asset* – deposit *liability* interest spread, since (at least in the US), loans average 62 percent of the assets and deposits 68 percent of the liabilities on bank balance sheets (not the same, but reasonably close)
    - NB: Loan *liabilities* and deposit *assets* of financial institutions are presumed to generate *intermediate consumption* of services rather than output

- BCFIW hollow out banks' receipts by eliminating a chunk of the spread (about 45 percent of it) as not being payment for service because it is risk remuneration
    - They think not doing so understates what **non**financial business owners actually get as operating surplus for deploying their capital and **overstates (nominal) final consumption** of FISIM and thus **GDP (in current prices)**
    - On the other hand, shouldn't the canonical set of accounts show money actually changing hands? Shouldn't FISIM exhaust the spread? Isn't risk management part of what banks do?

# An exploration—"1953/1993 synthesis"

- Other than "own funds," the 1993 SNA spread (net property income) is basically agnostic about what instruments generate FISIM in the financial corporations sector production account
  - All could contribute some indirectly measured financial service output or some indirectly measured intermediate consumption of financial service:
    - Language in paragraph 6.127(a) focuses on loan assets "For those to whom the intermediaries **lend** funds, both resident and non-resident, the difference between the interest actually charged on **loans, etc.** and the amount that would be paid if a reference rate were used" **but the "etc." suggests this also refers to other financial assets**
    - On the other hand, paragraph 6.127(b) does not restrict what non-equity liabilities are in-scope (no specific limitation to deposits)

- The 1953 SNA implicitly says the reference rate is the average return on the asset portfolio—a high reference rate
  - Borrowers get no indirectly priced financial services—they pay an explicit one-time origination fee and get a contract on which they pay SNA interest, a pure interest outgo for them
  - Non-equity funders, including but not limited to depositors, are entitled to the entire return on the asset portfolio; and they receive it
    - Partly as monetary interest
    - Partly as financial services—Including portfolio-level asset management services—valued as the difference between funders' share of the total asset return and their monetary interest compensation
  - Basically an investment fund with non-equity as well as equity funders

- **1953/1993 synthesis: 1953 SNA-type allocation of an interest spread with 1993 SNA instrument scope?**

# Technical sketch—notation

Table 1. Notation

| Concept | Flow | Liability | Asset |
|---|---|---|---|
| Output (total, in current prices) | $P1$ | | |
| Directly priced output prices ($m$ vector) | $p$ | | |
| Directly priced output quantities ($m$ vector) | $y$ | | |
| Intermediate consumption | $P2$ | | |
| Compensation of employees | $D1$ | | |
| Other taxes on production | $D29$ | | |
| Consumption of fixed capital | $-P51c$ | | |
| Nonfinancial assets | | | $AN$ |
| Financial instruments | | $AFL$ | $AFA$ |
|    Non-equity instruments | | | |
|     Deposits | | $AF2DL$ $AFL$ | $AF2DA$ |
|     Debt securities | | $AF3L$ | $AF3A$ |
|     Loans | | $AF4L$ | $AF4A$ |
|    Equity capital | | $AF5CL$ | $AF51A$ |

# Technical sketch—cash flow

Receipts = expenses

$$p'y + r'_{AFA} AFA \equiv P2 + D1 + D29 - P51c + r'_{AFL} AFL$$

$$\equiv P2 + D1 + D29 - P51c + \left( r_{AF5CL} AF5CL + r'_{\overline{AFL}} \overline{AFL} \right)$$

Profits

$$r_{AF5CL} AF5CL \equiv p'y + r'_{AFA} AFA - P2 - D1 - D29 + P51c - r'_{\overline{AFL}} \overline{AFL}$$

# Technical sketch—user cost margins

Adding SNA interest on liabilities to both sides of the receipts = expenses (cash flow) identity and subtracting SNA interest on assets from both sides of the cash flow identity yields the user cost identity (but we are not quite to SNA input and output) … here, we also separate the user cost margins between positive margins (+ subscript) and negative margins (- subscript)

$$p'y + \left( \hat{r}_{AFL} - r_{AFL} \right)_{+}' AFL_{+} + \left( r_{AFA} - \hat{r}_{AFA} \right)_{+}' AFA_{+}$$

$$+ \left( \hat{r}_{AFL} - r_{AFL} \right)_{-}' AFL_{-} + \left( r_{AFA} - \hat{r}_{AFA} \right)_{-}' AFA_{-}$$

$$\equiv P2 + D1 + D29 - P51c + \left( \hat{r}_{AFL}' AFL - \hat{r}_{AFA}' AFA \right)$$

# Technical sketch—FISIM

Positive margins = output, negative margins = input

$$P1 \equiv p'y + \left( \hat{r}_{AFL} - r_{AFL} \right)_+' AFL + \left( r_{AFA} - \hat{r}_{AFA} \right)_+' AFA$$

$$\equiv -\left( \hat{r}_{AFL} - r_{AFL} \right)_-' AFL - \left( r_{AFA} - \hat{r}_{AFA} \right)_-' AFA$$

$$+ P2 + D1 + D29 - P51c + \left( \hat{r}_{AFL}' AFL - \hat{r}_{AFA}' AFA \right)$$

… equity capital user cost margin, on *AF5CL* in vector *AFL*, part of primary services input (operating surplus), the rest is intermediate consumption

… historical versions of the SNA vary on (1) reference rates "r-hat" (they all set the instrument "r-hats" equal to one another, but the level of the resulting single "r-hat" has evolved) and (2) scope—what user cost margins get included on the left (output) and right (input) sides of the equation

… the **2008 SNA** moves all margins, positive or negative, that do not pertain to deposits (*AF2DL* in *AFL*) and loans (*AF4A* in *AFA*) to the input side by subtraction from both sides—*all non-deposit, non-loan input (negative) margins are effectively grouped with primary services (operating surplus)—thus, only negative deposit and loan margins are treated as intermediate consumption*

# Technical sketch—"1953/1993"

Case 1: consider an investment fund (a.k.a. canonical finance company)—loan financial assets only, equity finance only: reference rate equals return on loans, and property income paid investors is return on equity). The output=input identity specializes to

$$P1 \equiv p'y + \left( r_{AF4A} - r_{AF5CL} \right) AF5CL$$
$$\equiv P2 + D1 + D29 - P51c + r_{AF5CL} \left( AF5CL - AF4A \right)$$
$$\equiv P2 + D1 + D29 - P51c + r_{AF5CL} \cdot AN$$

… fully explains the spread between return on assets (loans) and cost of funds (return on equity). **Note that this presumes that "own funds" *AF5CL* are associated with FISIM, departing from SNA tradition.**

# Technical sketch—"1953/1993"

Case 2: Leveraged investment fund—loan financial assets only, equity *and* deposit finance (**a.k.a. a bank**)

$$P1 \equiv p'y + \left( r_{AF4A} - r_{AF2DL} \right) AF2DL$$

$$\equiv P2 + D1 + D29 - P51c + \left( r_{AF5CL} AF5CL + r_{AF4A} \left( AF2DL - AF4A \right) \right)$$

… reference rate is still the return on loans and spread is exhausted
… but equity capital now has a much higher observed return to compensate owners for leverage risk, and equity capital margin flips from positive (output) to negative (input); so we have subtracted it from both sides of the user cost identity
… return on nonfinancial assets now reflects leverage:

$$P1 \equiv p'y + \left( r_{AF4A} - r_{AF2DL} \right) AF2DL$$

$$\equiv P2 + D1 + D29 - P51c + \left( \frac{r_{AF5CL} AF5CL + r_{AF4A} \left( AF2DL - AF4A \right)}{AF5CL + \left( AF2DL - AF4A \right)} \right) AN$$

# How "1953/1993" would work

- Only an exploration, but an interesting one in view of its implications and coherence across the System

- On the liability side—"the funder always pays FISIM"
  - A bank's depositors, bond (debt security) holders, and lenders (with nominal contracts, like mortgagors) have 1$ shares in the bank's asset portfolio, like money market fund shareholders—receive FISIM, with rather large margins on deposits in the usual case
    - Most nondeposit counterparties are other financial corporations, thus are intermediate consumption (noting, however, potentially important ROW and external service trade effects); 2008 SNA would put bond margins in return to nonfinancial assets (operating surplus)
  - Owners receive some FISIM under low leverage, but not when leverage is sufficiently high that the return on equity exceeds the return on loans—the "own funds" assumption is satisfied only under sufficiently high leverage
  - If we generalize this to bring in the other liabilities besides deposits and equity (averages about 22 percent of US bank liabilities 2001-2011), then FISIM is proportional to a portfolio of liabilities rather than just deposits, but deposits still dominate.

- On the asset side
  - Only explicit service charges (e.g., loan origination fees), and property income (interest) paid
  - No indirect service charges

# Reconnecting with capital theory

- The Diewert, Fixler, and Zieschang (2012) "Austrian capital theory" model of financial services accounting has a single reference rate per SNA institutional unit, and thus, on average across units, per sector of the economy
  - Problem with differing average sectoral reference rates: the value of FISIM bought does not necessarily equal the value of FISIM sold by sector

- How the 1953/1993 synthesis works to solve this problem
  - Each institutional sector has claims on the liability sides of a different mix of financial institutions within the financial corporations sector
    - The reference rate for each institutional sector is the average return on the **asset** portfolios of the particular array of financial corporations in which its institutional units are invested—in effect, there are subsectors of each financial corporations subsector that correspond to the 5 major investing counterparty subsectors (NFC, FC, GG, HH, NPISH) plus rest of world
    - Thus, a single reference rate for each nonfinancial institutional sector, but full bought = sold coherence within each sector for indirectly measured financial services vis a vis the financial institutions on which they have claims

- Sector reference rates may be only a theoretical problem, as practical implementations will use a single reference rate per currency (2008 SNA)
  - Sectoral reference rate differences using this calculation might not be large
  - Impact on GDP might not differ that much from the single rate per currency approach

# Conclusion

- **The exploratory 1953/1993 synthesis presented here would broadly agree with the size of current estimates of the share of FISIM in total (nominal) output**

  - The 1953/1993 synthesis could have impacts on GDP in current prices compared with current methods, which for banks allocate some FISIM to loans—the impact on GDP would not be as large, nor necessarily in the same direction, as BCFIW

- **The "funder always pays FISIM" basis of the 1953/1993 synthesis**

  - This "back to the future" approach includes risk remuneration in FISIM, by assigning the benefit and the cost of the risk reallocation/management services of banks to the banks' funders, particularly depositors

  - "Money is valuable"

  - Leverage is important in how FISIM is allocated among financial instruments: equity partly drives FISIM under low leverage, violating the SNA's exclusion of "own funds," but not under high leverage, when only non-equity liabilities (deposits) remain in output

  - Loans may not have much to cover in an indirect service charge—see e.g. http://www.lendingclub.com/public/rates-and-fees.action

  - *There is an alternative view of the unleveraged and leveraged investment fund that excludes "own funds" from FISIM—in that case the reference rate is the somewhat lower, but potentially hard to estimate (for the leveraged case) **unleveraged** return on equity, and a small amount of FISIM would then be allocated to loans and presumed paid by borrowers— loan FISIM is nonzero but likely to be relatively small in this case*

- **There is still the problem of factoring the financial services nominal output and value added aggregate into price and volume components**