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IMPROVING THE TREATMENT OF HOLDING GAINS AND DEFAULT LOSSES IN NATIONAL ACCOUNTS

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Holding gains and losses and default losses play key roles in the operations and reported income of financial intermediaries and other businesses, but are excluded from the national accounts definition of income. Measures that combine income and holding gains/losses and that adjust the income of lenders for predictable default losses are needed to understand the operating results of businesses and the resources available to households, and should be presented in supplementary accounts. Changing the national accounts treatment of retained earnings of corporations to include retained earnings in the income of shareholders would provide improved insight into the roles of holding gains and saving in changes in the wealth of households and governments. To measure output properly in the core national accounts, apparent holding gains that are really payments for services must be distinguished from true holding gains, and expected default losses must be excluded from FISIM on loans.

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1. INTRODUCTION

The financial crisis of 2007–08 highlighted the need for macroeconomic statistics to provide more complete information on financial activity and financial developments in the economy. A part of the response to this revealed need of particular relevance to national accounts is the G-20 Data Gaps Initiative (DGI) recommendation to compile sectoral accounts (Heath, 2013). These accounts consist of the integrated sequence of accounts shown in Annex 2 of the *System of*

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National Accounts 2008 (*SNA*) by institutional sector, and for subsectors in the case of financial corporations.[1] The current accounts, which show production, income and saving, come first in the sequence. The accumulation accounts—consisting of the capital account, the financial account, the "other changes in volume of assets" (OCVA) account, and the revaluation account—then follow. By encouraging publication of the accumulation accounts, the sectoral accounts recommendation makes data available on the three sources of change in wealth that have hitherto received less attention than saving: capital transfers, OCVA, and holding gains and losses.[2]

Providing this new information on non-current sources of change in wealth is an important step forward. Nevertheless, the picture of financial developments in the macro-economy provided by the SNA remains incomplete in certain respects. To address these gaps, this paper proposes some refinements to the SNA guidelines involving holding gains and losses and the lenders' losses from defaults, which are part of the OCVA account. These proposals will enable the national accounts to give a more complete and meaningful picture of the sort of events that foreshadowed, or resulted from, the financial crisis and of the operations of certain kinds of financial corporations. To give one example of an issue addressed in this paper, national accounts measures of output and income that did not take holding losses and default losses into account implied that depository institutions were little affected by the financial crisis, even though in reality these institutions were suffering large losses and were curtailing their lending activity.

The discussion of our proposals and ideas for further research is organized in five sections. The second section provides background on the distinctions between the different sources of change in wealth in the conceptual framework of the SNA. The third section proposes some refinements to the treatment of holding gains. The fourth section discusses passing through all the income of corporations to their shareholders rather than recording saving by corporations. Under this proposal, less of the increase in wealth of the shareholders would be attributed to holding gains because they would be the ones who reinvest the earnings that are currently counted as reinvested by corporations themselves. The fifth section, discusses measures of the output, income and balance sheet of lenders that take account of losses from defaults. Finally, the four proposals are followed by a section that lays the groundwork for future research on accounting for deposit insurance.

2. Distinction between Income Flows and other Changes in Wealth in the SNA

In the conceptual framework of the SNA, income is generated by production or received from transactions that distribute the income generated by production. In concept, at least, holding gains and losses do not arise from production or

[1]Kornfeld, Lynn and Yamashita (2016) discuss the subsector breakdown of financial corporations in the U.S. sectoral accounts, which the U.S. calls "Integrated Macroeconomic Accounts."

[2]The analytical uses of the sectoral accounts can yield powerful insights into macro-critical financial developments. For example, Yamashita (2013) and Eichner, Kohn and Palumbo (2015) use of the U.S. sectoral accounts to detect imbalances that presaged the financial crisis.

distributive transactions, and unrealized holding gains do not even involve a transaction. OCVA, including defaults by debtors, also do not qualify as transactions (*SNA* 2.22). Hence, holding gains and OCVA are not part of income in the SNA.

Although the sharp distinction in the SNA between income and the non-transaction sources of change in wealth is helpful as a conceptual framework for organizing the data, in practice it does not always lead to a good description of the behavior or perceptions of economic decision-makers. The boundary between the holding gains and income can be blurred when predictable gains become close substitutes for income, and predictable default losses and also have implications for the measurement of income. Businesses, and to a lesser extent, households, tend to regard all predictable sources of change in wealth as interchangeable, a consideration that led Hicks (1946, 178–9) to define income as encompassing all expected sources of change in wealth.

The proposals in this paper aim at overcoming the difficulties in providing complete information in situations of blurred boundaries between holding gains and income, and between expected default losses current expenses. A challenge in designing these solutions is the need to be consistent with the existing conceptual framework of the SNA. This framework must be maintained because it results in a coherent, internally consistent system of accounts. Among the advantages of the definition of income in this framework is the equality between GDP and gross national income less net receipts of primary income from the rest of the world. This identity between production and income is a fundamental identity in national accounts.

3. Holding Gains and Losses

3.1. *Theory and effect on GDP*

Holding gains and losses are accounted for in the SNA in the revaluation accounts. Along with other changes in volume, they record the changes in the value of assets that are not explained by transactions (i.e. net acquisitions of assets). Holding gains and losses reflect price changes over the accounting period, between the beginning of period and the selling of the asset, or between the acquisition of the asset and the end of period. For most goods, holding gains and losses mainly reflect general inflation, but for financial assets and real estate, they reflect price fluctuations due not only to the market's supply and demand fundamentals, but also to changes in global macroeconomic conditions and expectations.

However, economic decision makers often treat holding gains as a close substitute for ordinary income, and distinguishing between holding gains and income from production in the source data that are available to national accounts compilers may be difficult. Measures that combine holding gains and income would provide information on income, as corporations perceive it, and would bring appropriate visibility to the important role of holding gains in building wealth.

Another problem is that price changes that appear to represent holding gains can be implicit payments for services, as occurs, for example, in the cases of storage of seasonal commodities or intermediation by security dealers. That is, a

seasonal commodity may be stored because its price is expected to rise, so the compensation for storage costs is the expected price increase. For security dealers, the compensation for intermediary services is already recognized to the extent that the difference between buying and selling prices represent the dealer's margin, but this compensation may also arise from longer term holding gains. Note, however, that if a price change formerly treated as a holding gain is reclassified as an implicit payment for services, the revisions to output, income and expenditures must be consistent with one another. Recognizing extra income means recognizing extra output that someone must consume.

Our proposals do not alter the definition of income or change the concept of GDP, and there is no need to make any changes in the core sequence of accounts when an alternative measure is reported as supplemental information. However, the proposals aimed at clarifying the boundary between holding gains and production could increase the estimate of GDP by improving the procedures for detecting apparent holding gains that are really payments for services. Correcting the treatment of an apparent holding gain causes a decrease in the estimate of holding gains in the revaluation account and increases in the estimates of output and value added in the production account of the provider of the newly recognized services. Increases also occur in operating surplus in the generation of income account, and in primary income, disposable income and saving.

The accounts of the purchaser of the services are also affected. If the purchaser is another business, in the production account intermediate consumption increases and value added decreases, causing GDP for the total economy to be unchanged. In the generation of income account of the business purchaser of the services, operating surplus decrease, and further down in the sequence of accounts primary income and disposable income also decrease. Saving of the purchaser always decreases; if the purchaser is not a business, the decrease in saving is caused by an increase in final consumption in the use of disposable income account. Finally, in cases involving trading of assets such as securities, adjustments to the buying and selling prices to reflect the embedded services may imply an increase in the holding gains shown in the revaluation account.

3.2. *Reporting income combined with holding gains*

In presentations and discussions of national accounts data, current account concepts, including income and saving generally receive more attention than OCVAs and holding gains. Activities that generate holding gains have, however, become a central part of operations of financial institutions (Stauffer and Meier, 2001). The national accounts may even diagnose a decrease in profitability just as corporations start to benefit from large holding gains on assets (Cette *et al.*, 2011). Holding gains are also very important for households, as they are typically the main source of increases in wealth, with saving playing a secondary role. Write-offs of bad debt recorded as OCVAs can also significantly affect the measured net worth of households or the "own funds" (defined as total assets less liabilities other than shares outstanding) of corporations.

Table 1 uses data for 2010 from France and the U.S. to illustrate these points. In the table, holding gains always contribute more than saving to growth in

TABLE 1

Sources of Change in Wealth, in France and U.S., 2010 (local currency, billions)

	France	U.S.
A. Nonfinancial Corporations		
Net Saving	−6.9	603.5
Capital transfers received, net	16.6	−20.9
Other changes in volume of assets and liabilities, excluding shares	57.6	632.4
Holding gains and losses	246.3	740.3
Implied change in Own Funds[a]	313.6	1955.3
Addendum:		
Net operating surplus (NOS)	121.8	1352.5
NOS + holding gains and losses	368.1	2092.8
B. Financial Corporations		
Net Saving	27.9	208.4
Capital transfers received, net	1.3	41.5
Other changes in volume of assets and liabilities, excluding shares	−0.7	−392.0
Holding gains and losses	115.1	487.6
Implied change in Own Funds	143.6	345.5
Addendum:		
Net operating surplus	23.4	227.1
NOS + holding gains and losses	138.5	714.7
C. Households[b]		
Net Saving	130.3	630.0
Capital transfers received, net	−2.9	20.6
Other changes in volume of assets and liabilities	−9.2	871.0
Holding gains and losses	581.7	2498.7
Implied change in Net Worth	699.9	4020.3
Addendum:		
Net disposable income (NDI)	1212.7	10832.2
NDI + holding gains and losses	1794.4	13330.9

[a]"Own Funds" is defined as total assets less liabilities other than shares.
[b]Column includes nonprofit institutions serving households
Sources: INSEE, Tableau Economique d'Ensemble, Comptes nationaux base 2010
BEA, Integrated Macroeconomic Accounts for the U.S.

wealth, and OCVAs, which include loan balances that are written off, add substantially to the wealth of households and nonfinancial corporations and reduce the wealth of financial corporations, where the wealth concept for corporations in Table 1 is "own funds."[3]

The importance of holding gains and the tendency of economic agents to treat holding gains as a substitute for ordinary income have led some to call for a change in the treatment of holding gains in national accounts. Changing the definition of income in national accounts to include holding gains *in toto* is, however, impossible. Recording income not connected to the production of an asset or a transaction (such as a sale of a service or the receipt of a payment) would undermine the consistency of the quadruple-recording system used in the accounts. Furthermore, if holding gains were to be included in income as measured in national accounts, the conceptual identity between the income-based measure of GDP and the measure of GDP based on production or final expenditures would

[3]The SNA defines the net worth of corporations as excluding the market value of their outstanding shares. Other things being equal, an action that increased a company's share price would have the effect of reducing its net worth.

break down.[4] This conceptual identity plays a fundamental role in national income accounting.

The national accounts can, however, report an appropriately labeled measure that combines holding gains and income. To meet the need in national accounts for a measure of resources that includes holding gains and that is close to the concept of income used in business accounting, we therefore propose that combined measures of income and holding gains be presented as supplementary information, together with corresponding measures that combine saving and holding gains.[5] Showing this sort of sum would elucidate the key role of holding gains in operating results of businesses and the formation of household wealth, and would clarify the situation of corporations and households that treat holding gains as a substitute for ordinary income in "real" economic life.

To illustrate the usefulness of combined measures of income and holding gains, in the addendum section of each panel of Table 1, holding gains are added to the income concept reported above. In France, the combined holding gains and gross operating surplus (GOS) are three times as large as GOS alone for nonfinancial corporations, and in the U.S., they are about 55 percent larger than GOS alone for nonfinancial corporations. For financial corporations, the combined measure is six times as large in France and three times as large in the U.S. For households, the combined measure is almost 50 percent larger than net disposable income alone in France, and almost 25 percent larger in the U.S.

Another example of reporting a combined measure of holding gains and income comes from the treatment of employer-sponsored defined benefit (DB) pension funds in the U.S. National Income and Product Accounts (NIPAs)(Bureau of Economic Analysis, 2016). DB pension funds frequently rely on realized holding gains on investments in equities to fund benefit payments, in effect treating the holding gains as a substitute for ordinary income. Even if a pension fund has assets equal to households' pension benefit entitlements (the present value of promised future benefits), substitution of holding gains for property income may cause an apparent shortfall in the fund's property income compared with the amount needed to fund the accrued benefits. To clarify this situation, the NIPAs report a combined total of property income and expected holding gains on the assets of DB pension funds. For example, NIPA table 7.21 shows that in 2010, the increase in households' DB pension entitlements caused by the unwinding of the discount factor of 503.6 billion dollars was funded with property income of 371.2 billion dollars and expected holding gains of 132.4 billion dollars.[6]

Imputed payments of property income also occur in the non-life insurance industry. Policyholders pay premiums at the beginning of the coverage period for

[4]In the special circumstances of an apparent holding gain that really represents a payment for services, income can be recorded while preserving this identity. But this entails consistently changing the treatment of the holding gain to a transaction in the output, income and revaluation account, as explained below.

[5]The SNA already recommends showing the total of all sources of change in wealth in the balance sheet account.

[6]The pension fund table (S.64.a) in the U.S. sectoral accounts shows that actual holding gains of DB pension funds were 2 billion dollars less than these expected holding gains.

the insurance, but the premium income is earned (accrued) by the insurance company at a uniform rate over the coverage period. In addition, time elapses between events that cause insured losses and final settlement of the claims. Insurance companies therefore receive investment returns from the policyholders' money. These investment returns may be passed on to policyholders by reducing their premiums to below the actuarially required level corresponding to the expected cost of providing the insurance. The SNA therefore imputes payments of property income to policyholders, which the policyholders then return to the insurance company as "premium supplements" that pay for some of the insurance services that they consume. The insurance company may use holding gains to fund the premium supplements. Expected holding gains are reflected in lower explicit prices for insurance cover, and hence belong in the measure of premium supplements for the property-casualty insurance industry (Chen and Fixler, 2003).

3.3. *Clarifying the boundary between holding gains and production*

An item need not undergo a physical transformation for production to take place. Changes in the condition of an item that make it more useful to the buyer, or that allow the buyer to access the item in a more convenient way or at the preferred time, represent services. Payments for such services that are embedded in the item's selling price often appear to be holding gains. If these apparent holding gains are mistaken for true holding gains, the services will be missed by the national accounts.[7] If the services are consumed by households or government or are exported, correcting this mistake will then result in a larger measure of GDP, while if they are consumed by another industry, correcting this mistake will result in a reallocation of value added from the consuming industry to the producing industry.

One hallmark of apparent holding gains is that the price changes are predictable or expected. Recognizing that services are behind the apparent holding gains will therefore allow income linked to expected price changes to be recorded while maintaining the national accounts identity between income and production. Recording the production and income associated with apparent holding gains will bring national accounts closer to the approach to defining income as including expected holding gains that was discussed by Hicks (1946, 178–79) and Hill and Hill (2003) because apparent holding gains involve predictable, expected price changes. Nevertheless, the rationale for treating apparent holding gains as income is that they are not really holding gains, not that they are expected.

Some examples of apparent holding gains involving storage of seasonal commodities and liquidity services of market makers and underwriters of securities issues are presented below. In many cases, these apparent holding gains are recognized as such in the SNA. However, apparent holding gains are more common

[7]Another illustration of the principle that amounts reported as one thing may actually represent something else comes from banking. Interest rates paid by borrowers include a component that substitutes for explicit fees for the services. The SNA terms the services that are implicitly purchased by paying a higher rate of interest on loans or accepting a lower rate of interest on deposits "financial intermediation services indirectly measured", or FISIM.

than has been recognized and the practical measurement implications have not been fully considered.

Storage of seasonal commodities

The general rule is that price changes for items stored as inventories represent holding gains or holding losses that must be excluded from the measure of output. For this reason, the SNA (6.105–6.106) recommends that additions to inventories and withdrawals from inventories be valued at the current price at the time of each transaction. Suppose, for example, that an item is produced and added to inventories when the price equals 1, and consumed at later time when the price has risen to 2. The sum of consumption of 2 and inventory investment of -2 gives the correct measure of output at the time of the item's consumption, and inventory investment of 1 gives the correct measure of output at the time of the item's production. Cumulative inventory investment over a longer interval covering the entire inventory cycle is -1 at current prices, which is minus the holding gain. The component that subtracts the holding gains can cause the current price measure of inventory investment to differ in sign from inventory investment at constant prices.

The SNA does, however, recognize some exceptions to the general rule that price increases on stored items are holding gains and not a result of productive activity. Storage of seasonal items so that they can be available at times of peak demand or outside the season when they are produced is one such exception. Storage of seasonal items is discussed as a case of apparent holding gains in SNA paragraphs 6.143 and A6.15-A6.18, which treat predictable increases in value caused by seasonal pricing patterns as production.

The discussion in the SNA of apparent holding gains from storage of seasonal commodities does not go beyond a purely conceptual level to consider the required measurement procedures. The standard procedure of using current prices at the time of the transaction to value inventory additions and withdrawals treats all holding gains as actual holding gains. This means that the apparent holding gains representing storage services on seasonal products would be mishandled.

Because the payment for the storage services for seasonal commodities comes from the predictable price changes between the times of year when inventories are accumulated and the times when they are consumed, it can be estimated using differences between the commodity's seasonally adjusted price index and its unadjusted price index. The hypothetical holding gains based on seasonally adjusted prices from storing a seasonal commodity in months when supply is seasonally high or demand is seasonally low and selling it in months when the reverse is true will be smaller than the holding gains calculated from the unadjusted prices by an amount that represents the apparent holding gains.

To illustrate the use of seasonally adjusted prices to estimate seasonal storage services, Table 2 uses data on underground storage of natural gas in the U.S. from the U.S. Energy Information Administration together with the unadjusted and seasonally adjusted U.S. producer price index (PPI) for utility gas from the

TABLE 2

INTRA-YEAR PRICE CHANGES AND UNDERGROUND INVENTORIES OF NATURAL GAS IN THE U.S. (BASED ON AVERAGES OVER 2009–15)

	Price[a] (Per thousand cubic feet)	Seasonally Adjusted Price (Per thousand cubic feet)	Physical Change in Inventories[b] (Billions of cubic feet)	Decrease in Current Price Inventory Investment due to Price's Deviation from Annual Price (Millions of dollars)	Revenue from Seasonal Component of Deviation from Annual Price (Millions of dollars)	Holding Gains on Inventories (Millions of dollars)
January	3.95	3.87	−753.8	118.6	54.5	64.1
February	3.93	3.88	−586.9	81.5	28.9	52.6
March	3.91	3.87	−166.0	19.2	6.4	12.8
April	3.82	3.84	233.7	−8.2	4.3	−12.5
May	3.73	3.81	422.1	25.8	36.1	−10.2
June	3.74	3.79	353.6	16.1	17.5	−1.4
July	3.78	3.79	271.4	3.6	2.6	1.0
August	3.74	3.76	260.7	11.7	4.0	7.7
September	3.68	3.75	355.8	38.4	23.3	15.2
October	3.68	3.72	305.2	31.9	12.2	19.7
November	3.73	3.69	−73.2	−4.0	3.2	−7.2
December	3.77	3.69	−484.6	−7.1	39.0	−46.1
Annual Average	**3.79**	**3.79**	N.A.	N.A.	N.A.	N.A.
Annual Total	N.A.	N.A.	**138.0**	**327.7**	**232.0**	**95.7**

[a]Prices are calculated from Henry Hub price from the U.S. Energy Information Administration (EIA) and the Utility Natural Gas Producer Price indexes from the U.S. Bureau of Labor Statistics.

[b]Yearly value of inventory investment is $523 million at constant price of $3.79, and is $195.3 million at current prices. Physical inventory data come from the EIA.

TABLE 3

Inventory Investment in Underground Storage of Natural Gas in the U.S. (Millions of Dollars)

	Change in Inventories			Components of Value Gap	
	Valued at Year Average Constant Price	Valued at Seasonally Adjusted Prices	Valued at Current Prices	Holding gains	Implicit Storage Services
2009	1377	618	393	759	225
2010	67	64	−287	3	351
2011	1372	1513	1245	−141	268
2012	29	−174	−301	203	127
2013	−2155	−1734	−1982	−421	247
2014	999	1362	1090	−364	272
2015	2126	1219	1082	907	138
Average	**545**	**410**	**177**	**135**	**233**

Prices are calculated from Henry Hub price from the U.S. Energy Information Administration (EIA) and the Utility Natural Gas Producer Price indexes from the U.S. Bureau of Labor Statistics. Physical inventory data come from the EIA.

U.S. Bureau of Labor Statistics.[8] The monthly physical inventory changes and the monthly prices (adjusted for the changing energy content of a cubic foot of gas as reported by the U.S. Energy Information Administration) shown in the table are averages over the years 2009–15. Gas is put into storage in the warmer months, when the price is relatively low, and withdrawn from storage in the winter months, when the price is high. In addition, during the period covered by Table 2, there was a downward trend in gas prices that tilted the average 12-month profile, depressing the December price relative to the January price. The trend is particularly evident after the seasonal variation between the monthly prices is removed.

Calculated using the data in Table 2, the value of inventory investment over the full year is $523 million at a constant price of $3.79, and $195.3 million at current prices. The contribution of each month to the total difference of $327.7 million is calculated by multiplying the deviation of the price from the annual average price and the change in inventories in that month with the sign reversed. Multiplying the difference between the unadjusted and seasonally adjusted price in a month by the change in inventories in that month (with the sign reversed) gives that month's contribution to the apparent holding gains, which should be treated as implicit payments for storage services. The seasonal storage services during the year amount to $232 million, much larger than the actual holding gains of $95.7 million.

The storage services implied by the data for the individual years from 2009 to 2015 are shown in Table 3. These services range from $127 million in 2012 to

[8]The PPI for utility gas covers sales to users of natural gas by the natural gas industry, both businesses (such as electricity generators) and households. Spot prices paid by natural gas traders are much more volatile and have larger seasonal fluctuations, so they would imply larger but less precise estimates of storage services. Prices received from customers of the gas industry are more appropriate for most national accounts purposes.

$351 million in 2010 and average just under $233 million. The storage services are much less volatile than the actual holding gains, whose range is from –$421 million to $907 million, with an average $135 million.

To allocate the consumption of the seasonal gas storage services to major users (such as households, electricity generators, and other industries) the apparent holding gains implied their particular seasonal demand patterns can be calculated. The services used by each class of customer will depend on how closely the peaks and troughs in their demand coincide with the seasonal peaks and troughs in the price.

Liquidity Services of Market Makers

Although most businesses do not disclose the holding-gains component of their earnings, securities dealers and market makers typically do report trading gains as a separate item. For national accounts compilation purposes, these trading gains at least partly represent apparent holding gains. In particular, some trading gains of a predictable nature may actually represent payments for services provided to security buyers and sellers.

The SNA already recognizes that spreads between bid and ask prices are a source of implicit payments for services of security dealers and foreign exchange dealers. (When the dealer buys, the service charge equals the average of the bid and ask prices less the purchase price, and when the dealer sells, the service charge equals the selling price less that same average price—see *SNA* 6.170, 9.63 and 17.259.) The principle that differences between buying and selling prices can arise from services embedded in the transactions is applicable more broadly, however. In general, expected holding gains from activities that enable customers or counterparties to buy or sell at a convenient time or in a convenient way represent implicit payments for services because facilitating the exchange of financial assets is a service (*SNA* 6.17).

Market making in securities is an example of this. Market makers whose implicit sales of services are embedded in the prices of their trades with clients produce market liquidity services demanded by the clients. As part of these services, the market makers may manage their inventories to enable clients to make trades when desired at relatively stable prices.[9]

Treating all of the reported trading gains of market makers as payments for services would avoid the need to distinguish between own-account trading and customer-driven business, which may be impossible. It would also have the conceptual rationale that the own-account activities may reduce the spreads paid by customers by spreading overheads and generating market intelligence that reduces the riskiness of the liquidity provision activity. However, in risky situations, outcomes for trading gains may be volatile, which could occasionally lead to negative

[9]Comerton-Forde *et al*. (2010) find that volatility rises and liquidity suffers when market makers on the New York Stock Exchange face financing constraints on holding inventories. An article in the Financial Times of July 29, 2015 entitled "US Treasuries Market faces Liquidity Concerns" provides another example. It reports that: "[T]raders say they used to step in during volatile price swings to help clients, with the aim of securing more business for when markets were calm. It was part of the client relationship."

or extreme values. This may necessitate the use of averaging techniques to estimate the *ex ante* expected gains.

Apparent holding gains also occur in activities of underwriting of securities issues. Rather than acting as middleman and charging a commission to the issuer, the financial institution bringing the security issue to market may buy the securities at a discount with the intention of selling them to customers over time at a profit. Similarly, mortgage originators who do not wish to hold the mortgages themselves obtain payment for their service of originating the mortgage by selling it for more than the amount disbursed to the borrower.

An empirical example

An example of the estimation of the liquidity services from market making and underwriting of securities issuance by large deposit-taking institutions and securities and derivative dealers in France is shown in Table 4. The estimates of the production of these services are based on information in the financial statements of these institutions, but the estimates of who consumes these services rely on some assumptions. Sectors that consume services of securities issuance are mainly general government and non-financial corporations. The investors who use liquidity services of market makers in secondary markets could come from any sector, however. They may even be small financial institutions obtaining services from larger ones. To estimate each sector's consumption of liquidity services in secondary markets, we allocate the overall total amount of these services consuming sectors based on the absolute value of the transactions in bonds and shares in the financial accounts, using the most disaggregated level available.[10]

The market output of explicitly priced services and FISIM of financial intermediaries (excluding insurance and pension funds) in France is shown for reference at the top of Table 4. It ranges from €94 billion to €128 billion over 2003–13. The production of liquidity services in secondary markets and for securities issuance is usually less than 1 percent of this amount. The jump in 2010 comes from an improvement in reporting. The decline in 2012 in the provision of liquidity services is caused by securities issuance activities moving to foreign branches.

Data from the U.S. also show that liquidity services in secondary markets in the U.S. are a relatively small share of the output of the security broker and dealer industry. In detailed breakdowns of the income of the U.S. security broker-dealer industry in 2001 to 2010 from the Securities Industry and Financial Markets Association,[11] trading gains from market making in over-the-counter securities range between 1.5 percent and 9 percent of the value of commissions received by the industry.

[10]For sectors that use the market liquidity services for securities issuance, the estimates are based on the flows of issuance of bonds and shares on the liability side. For sectors that use market liquidity services on secondary markets, the estimates are based on flows of bonds, shares and derivatives on the assets side.

[11]"U.S. Securities Industry Financial Results (xls) – Quarterly and Annual Data from 2001 to 2010," accessed at http://www.sifma.org/research/statistics.aspx.

TABLE 4

Implicitly Priced Market Liquidity Services of Financial Institutions in France (€ billions unless stated differently)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production as reported in the national accounts	*93*	*95*	*97*	*101*	*108*	*105*	*119*	*125*	*122*	*124*	*128*
Apparent holding gains generated by intermediation	0.154	0.086	0.102	0.083	0.129	0.359	0.251	1.364	1.364	0.718	0.555
as a percent of existing measure of production	*0.16*	*0.09*	*0.10*	*0.08*	*0.11*	*0.34*	*0.21*	*1.08*	*1.11*	*0.57*	*0.43*
By the sector using the implicit intermediation services											
Financial institutions, excluding insurance	0.031	0.019	0.016	0.02	0.032	0.137	0.031	0.359	0.429	0.145	0.129
Insurance and pension funds	0.009	0.005	0.004	0.003	0.005	0.021	0.023	0.298	0.023	0.056	0.05
Nonfinancial corporations	0.008	0.005	0.003	0.002	0.006	0.04	0.028	0.112	0.144	0.102	0.033
General government	0.017	0.007	0.005	0.001	0.003	0.051	0.048	0.246	0.229	0.121	0.061
Households	0.001	0	0	0	0	0.004	0.002	.024	0.012	0.012	0.006
Rest of the world	0.085	0.048	0.071	0.053	0.081	0.102	0.116	0.323	0.524	0.28	0.273

Source: National accounts plus data reported by banks to the ACPR–authors' calculation.

3.4. *Summary*

Although a definition of income that includes holding gains is not suitable for national accounts purposes, the need for a broader definition of income can sometimes be met by reporting a combined concept of income and holding gains as supplementary information. In other cases, holding gains may not be as large as they seem because apparent holding gains are actually implicit payments for services to make an item accessible in a time, place, form or arrangement that is convenient for the buyer. In these cases, correctly treating the apparent holding gains as income from sales of services will allow income to be recorded without violating the fundamental principle that income arises from production. We have provided some examples of liquidity services in the buying and selling of financial assets that superficially appear to be holding gains.

4. Should Corporations have Saving?

4.1. *Theory and effect on GDP*

Except in the special case of foreign direct investment (FDI), the SNA treats corporate earnings that are retained and reinvested as saving of corporations. With this treatment, the income of shareholders depends on how much of its income the corporation decides to distribute as dividends. For example, the disposable income of the government shown in the national accounts will be larger if public corporations decide to pay out more of their income as dividends, and the disposable income of households will be lower if private corporations decide to return money to shareholders by buying back shares rather than by paying dividends.

When the corporation has widely dispersed ownership, a justification for leaving retained earnings out of the income of shareholders is that individual shareholders have no direct control over the uses of the retained earnings. Another justification, which applies to all corporations, is that the limited liability enjoyed by shareholders gives corporations an independent identity from their owners. In particular, limited liability means that in bankruptcy situations, the negative net worth of the corporation does not pass through to its shareholders.

We propose to pass all of the distributable earnings of corporations through to their investors, making saving of corporations equal to zero. Our proposed treatment takes the viewpoint that companies belong to their shareholders and, therefore, have no saving in their own right. As owners of the corporation, the shareholders benefit from all of its earnings regardless of whether they are distributed. Put differently, a holder of equity in a corporation that retains earnings can, in principal, sell shares to effect a situation that is identical to the one in which the corporation distributed the earnings as dividends. This is akin to the Modigliani and Miller (1958) result that the value of a corporation is neutral to the decision between equity and debt financing. We therefore reroute the reinvested earnings to the shareholders, who are then the ones that reinvest. In effect, we propose to loosen the criterion of responsibility for losses. Through loss of value

of shares and elimination of dividends, dispersed owners are also collectively liable for the losses of the company in fact, if not as a matter of contract.

The split between saving and holding gains as drivers of the change in shareholder wealth implied by our proposal correctly reflects the increase in the assets held by a company, and thus held by the shareholders as owners of the company, when earnings are reinvested. Corporate earnings that are retained and reinvested increase the quantity of assets represented by a share, thereby changing the share's characteristics. The shareholders' holding gains that reflect pure price effects are calculated as the residual change in the value of their shares taking this reinvestment into account.

Our proposal to pass retained earnings through to shareholders has no effect on GDP. However, national income and net national saving will be affected by an amount equal to the difference between retained earnings on shares in portfolio investment in the rest of the world and retained earnings on shares of resident corporations held by the rest of the world. This effect is likely to be relatively small. The larger effects will be on the disposable income and saving of the individual sectors. If retained earnings of private corporations are positive, as is usually the case, the disposable income and saving of households and NPISH will increase, and the disposable income and saving of the corporations will decrease. In cases of public corporations with negative retained earnings, our proposal will reduce government saving.

4.2. *Extending the special treatment given to foreign direct investment*

The SNA treats retained earnings of foreign corporations included in FDI (typically foreign affiliates of multinational corporations) as though they had been distributed and then reinvested by the shareholder (*SNA* 3.64 and 7.137–7.139). The reasoning behind this treatment of retained earnings is that FDI usually involves a controlling shareholder who has effective access to the earnings of the corporation (*SNA* 7.138). The controlling shareholder may also be obliged to stand behind the debts of the corporation for reputational reasons. If so, the shareholder does not have limited liability in an economic sense.

Because the SNA already treats foreign direct investors as receiving and reinvesting retained corporate earnings, our proposal would result in similar treatment of direct and portfolio investors and of resident and foreign direct investors. On a practical level, rerouting retained earnings to shareholders would also help to avoid distortions in the national income of both the original and new country of residence when corporations engage in corporate inversions.[12] Finally, it may also avoid, or at least diminish, the paradoxes that occur when defined benefit pension plans and insurance companies use (realized) holding gains to fund benefit or claims payments recorded as transactions.

[12]Multinational corporations sometimes change their country of residency by "inverting" their corporate structure, with the former parent becoming the subsidiary and the former subsidiary in a lower tax jurisdiction becoming the parent. The undistributed income of the inverted corporation then becomes part of the national income of the country of the former subsidiary even though the corporation continues to be managed from its original jurisdiction.

The SNA mentions an extension of the approach used for FDI to public corporations as an item for the research agenda (*SNA* 7.140). The treatment of FDI is based on the presumption that the foreign investor has control of the company, and therefore has direct access to its net income. Public corporations also have a controlling shareholder, so rerouting retained earnings of public corporations to the government would improve the logical consistency of the system of accounts. The consistent principle would be that the retained earnings are rerouted in cases of a controlling shareholder. Also, in the case of public corporations, the limited liability justification for allowing corporations to have saving may not apply. In most cases, the government that controls the public corporation is expected to stand behind its debts.

The current treatment of public corporations also has two practical disadvantages that can be avoided by adopting the treatment used for FDI. First, governments may receive dividends, or in-kind assistance, from public corporations that cause the saving of the public corporations to be negative. Failure to take account of this negative saving can give an unrealistic picture of the government's fiscal situation. Second, large operating losses can cause public corporations to be classified as non-market producers and therefore treated as part of general government (*SNA* 22.27). The discontinuity at the point where a public corporation starts to be classified as a non-market producer whose saving passes through to the government may result in spurious swings in government saving as the classification of public corporations changes.

As an interim solution, a way to report government saving with retained earnings of public corporations within the framework of the current SNA would be to publish a supplementary sequence of accounts for the public sector, where the public sector consolidates the government and public corporations. This proposal is already in the SNA as an option to consider (*SNA* 22.164–22.170), but we would make publication of key aggregates for the public sector, including saving, a firm recommendation. Assuming no change in the recommendations for the core national accounts, placing the version of accounts showing the public sector in supplementary tables will allow the core accounts to continue showing a division of the economy into different sectors including government, nonfinancial corporations, and financial corporations.[13] Additional supplementary tables would show the income of final holders of corporate equity with retained earnings on that equity included, where the resident final holders are households, nonprofit institutions serving households (NPISH), and government.

4.3. *Importance of holding gains on equities in growth of household wealth*

Holding gains on equities are often the largest source of growth of household wealth in countries where households directly or indirectly hold large amounts of corporate equity. For example, in the Economic Accounts of the U.K., over the period 2007–13 net acquisitions of financial assets less

[13]For example, in the French national accounts, government-owned enterprises are categorized into non-financial corporations and financial corporations according to their activity. But in the U.S. NIPAs, the current surplus of government enterprises (comprising most public corporations) is included in government receipts.

TABLE 5
Sources of Change in Household Wealth in Averages for the U.S., 2005–13

	Annual average in billions of dollars	Percent of Disposable Personal Income
Saving, investment in durables, and capital transfers	713.9	6.4
Difference between financial and capital account estimates of net lending, and other changes in volume of assets	463.2	4.2
Holding gains on real estate and other nonfinancial assets	−55.6	−0.5
Holding gains on financial assets	1421.6	12.8
Total change in net worth	**2543.1**	**22.9**

Source: Derived from Integrated Macroeconomic Accounts of the U.S., table S.3a, as published in 2015.

growth of liabilities averaged £31 billion per year for households and NPISH, much less than the average annual change in financial net worth of £120 billion per year. Although holding gains on listed U.K. equities were modest over 2007–13, households in the U.K. did enjoy sizeable holding gains on their holdings of equities from other countries and of unlisted shares. It therefore seems safe to presume that holding gains on equities account for much of the growth in financial net worth not explained by net acquisitions of assets and liabilities. In particular, it seems safe to presume that average annual holding gains exceed the average net saving of households and NPISH over the period, which was only around £20 billion per year.

The story for the U.S. is similar. In the period of 2005–13, holding gains on financial assets of households and NPISH, which come mainly from equities, averaged $1.4 trillion, twice as much as saving plus net investment in consumer durables and net capital transfers of about 700 billion dollars (Table 5). The relative contribution of holding gains on equities to growth in U.S. household wealth was even greater in earlier periods (Reinsdorf, 2004, 2007).

Passing retained earnings through to investors in equities who then reinvest them usually reduces the measure of households' holding gains. The holding gains on equities that drive increases in household wealth may largely be attributable to retained earnings. For example, the 2014 Blue Book of the Office of National Statistics shows that over the years 2006–13, the cumulative net saving of private non-financial corporations in the U.K. was £539.6 billion, while the change in the market value of their equity over those years was £614.1 billion.

4.4. *Examples of rerouting retained earnings to shareholders*

Rerouting retained earnings to households in France

In order to produce similar estimates for France, we assume that households are the main final holder of equity shares, so when retained corporate earnings are rerouted, the main effect is to raise households' property income and saving. The increase in the measure of saving is offset by a decrease in the measure of households' holding gains, resulting in the same overall change in household wealth.

Entitlements to benefit from the retained earnings come both from shares that are held directly and from shares held indirectly through financial intermediaries. To estimate the latter, it is necessary to decide whether the final investor—in this case, a household—is really entitled to the returns from the assets of the financial institution where the shares are held.

For investments in equity through mutual funds, the answer is clear: The investor is entitled to the returns on the funds' assets. Retained earnings corresponding to the equities that mutual fund holds must thus be passed through to the investors in the mutual fund. To pass through mutual fund shares representing ownership of corporate equities, we replace the non-monetary mutual fund assets on households' balance sheet by the structure of the assets held by the resident non-monetary mutual funds.[14]

In the case of insurance, determining whether the investor is really entitled to the returns on the assets of the financial institution is less straightforward because the legal characteristics of the insurance contract must be considered. Looking first at life insurance, there are two main types of investment contracts in France. The first type, which may be termed "with profits,"[15] typically entitles the policyholder to a fixed annual interest rate plus 85 percent of the returns on the insurer's assets including any realized holding gains and losses. The insurance company can either distribute the 85 percent of the yearly return on assets or accumulate it in a special provision.[16] The second type of life insurance contract, called "unit linked," entitles the investor to the returns of a specified asset (usually a mutual fund) and to its value at termination. The insurer may also guarantee that the investor will receive at least the premium paid after a certain period.

Both of these contracts give the investor a claim on the asset returns. We therefore include the equity held by life insurers in the allocation of retained corporate earnings to households, but in the case of "with profits" insurance, we allocate only 85 percent of the retained earnings.[17]

The treatment of equity shares held by non-life insurers is a more ambiguous question. The SNA reroutes property income from technical reserves of non-life insurers to policyholders as premium supplements (*SNA* 17.15). However, from a legal point of view, non-life policyholders in France have no compulsory entitlement to the returns on the insurer's general assets (as is the case for life insurance policyholders). We therefore include only 15 percent[18] of retained earnings on equities held by non-life insurers in the allocation of retained earnings to shareholders.

[14]Monetary mutual funds are not allowed to invest in shares.

[15]However, at this low level of granularity, estimates of with-profits insurance are comingled with whole–life insurance contracts and annuities.

[16]"*Provision pour participation aux bénéfices.*" Note that the asset returns and special provision are defined for groups of policyholders, not on a contract-by-contract basis. In most cases, the special provision has to be released to the policyholder within eight years.

[17]In addition to households, the rest of the world gets a small amount of the retained earnings. Also, non-financial companies purchase insurance on the life of key managers. These contracts are non-material at the aggregated level.

[18]This corresponds to the average excess of losses plus managing costs plus dividends over premiums on average over 2007-2013.

TABLE 6

Reinvested Corporate Earnings to Households and NPISH in France (Billions of euros, unless stated otherwise)

	2010	2011	2012	2013
Shares directly held by households and NPISH	**797.5**	**753.1**	**891.2**	**986.1**
listed	161.2	134.5	153.3	181.6
unlisted	636.2	618.6	737.9	804.4
Shares held through mutual funds	**140.3**	**129.5**	**151.6**	**166.9**
Shares held by households through insurance	**268.8**	**254.0**	**242.8**	**256.0**
"With profits" insurance				
listed	53.8	48.2	45.1	52.0
unlisted	62.9	67.4	55.8	32.6
held through mutual funds	45.7	32.7	30.8	33.3
Unit linked insurance				
listed	3.3	3.2	3.7	5.2
unlisted	0.4	0.4	0.4	0.7
held through mutual funds	68.4	60.3	60.3	68.0
Non-life insurance				
listed	6.6	5.9	5.9	7.4
unlisted	25.7	34.1	38.9	54.9
held through mutual funds	1.7	1.3	1.4	1.6
Reinvested earnings passed to households and NPISH	**20.8**	**1.7**	**4.0**	**4.4**
From shares held directly	14.4	1.2	2.9	3.2
From shares held through mutual funds	2.5	0.2	0.5	0.5
From shares held through insurance	3.9	0.3	0.6	0.6
As a percent of dividends received by households	**41.7**	**3.2**	**7.9**	**8.4**
As a percent of premium supplements received by households	**37.2**	**3.4**	**7.6**	**8.4**
As a percent of households saving	**10.3**	**0.9**	**2.0**	**2.2**

Source: National accounts plus data reported by banks and insurers to the ACPR–authors' calculation.

Note that realized holding gains on shares held in insurance reserves (both life and non-life) may be included in the funding sources for the property income that is rerouted to policyholders as premium supplements. Our proposed treatment of retained earnings is likely to convert the holding gains received by the insurer and used to fund premium supplements into property income received by the insurer. It therefore changes the source of the funding for the property income routed to households. It may also change some unrealized holding gains into additional property income for households.

Estimated effects on households in France

The top part of Table 6 presents rough estimates made with publicly available data of the effect of shares held directly or indirectly by households and NPISH in France.[19] Based on the treatments of mutual funds and insurance just described, the indirectly held portion of the shares held by households and

[19]On the basis of profit and loss accounts of French insurers – average 2007–2013. A calculation using confidential security-by-security data of mutual funds would be of much higher quality. Birouk *et al*. (2014) pass through mutual fund shares held by insurers to ultimate owners in this more precise way. The estimates presented below for households' holdings of shares through insurers are based on their methodology.

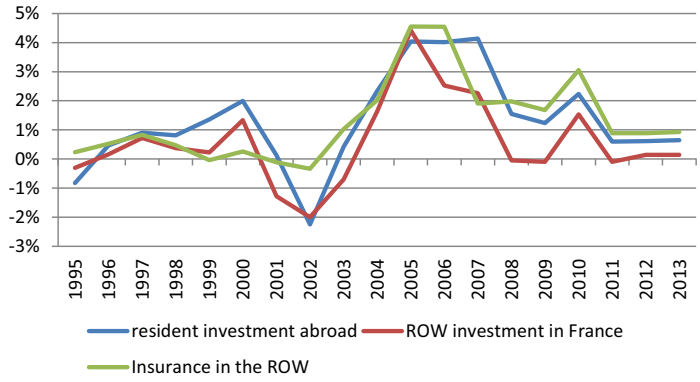

Figure 1. Reinvested earnings on foreign shares held by all residents and insurers in France, and on French shares held by the rest of the world (percent of the value of the shares) [Colour figure can be viewed at wileyonlinelibrary.com]

NPISH averages 32 percent of households in 2010–13, and trends down because of decreases in shares held in life insurance contracts and increases in shares held directly. The period of relative disinvestment from shares by life insurers coincides with the European sovereign debt crisis, and it may also reflect the insurers' adaptation to the higher impact of equity volatility in the new market-based and risk-based prudential regulation.

The bottom part of Table 6 presents estimates of the effect of passing through to shareholders the retained earnings on shares held directly or indirectly by households and NPISH. We calculate retained earnings benefitting households by assuming that households in France get the average rate of retained earnings to value of shares held as direct investment by French residents abroad and foreigners in France.[20] As shown in the bottom three rows of Table 6, in 2010 retained earnings benefitting households are significant compared to property income from dividends and from premium supplements, and they also have an appreciable effect on the measure of household gross saving. They are also highly variable. The retained earnings on shares held by households and NPISH are €20.8 billion in 2010, which is about 40 percent of their dividend income and almost ten percent of their savings. However, in 2011–13, the retained earnings allocated to households and NPISH average only around €3.4 billion.

Retained earnings are sensitive to economic activity, and they are unusually high in 2010, as illustrated in Figure 1, which covers the period 1995–2013. As inferred from average retained earnings on shares held by French residents abroad and foreigners in France in 1995–2013, retained earnings benefitting households represent a return of just 0.9 percent. Furthermore, the impact on household saving would be lower because of realized holding gains already included through premium supplements.

[20]This ratio is close to the average over 1995–2013 of retained earnings received by residents on shares held abroad and retained earnings received by the rest of the world on shares held in France weighted by the approximate proportions of foreign/resident shareholding of insurers (See Figure 1).

Empirical example based on the data for U.S.

To calculate the effects of rerouting retained earnings on the saving of U.S. households and NPISH, we use the published net saving of private corporations to measure the retained earnings of U.S. corporations excluding public corporations. We then deduct the portion of those retained earnings that benefit foreign shareholders and add the retained earnings on shares issued in the rest of the world that are held by U.S. residents.[21] This gives the total retained earnings benefitting U.S. residents. Next, we assign shares held indirectly through financial institutions such as mutual funds, insurance reserves, and pension funds to their ultimate beneficial owners. Combining the retained earnings on indirectly held shares with those on shares directly held by resident final owners and deducting the small amount of retained earnings benefitting governments gives an estimate of the retained earnings benefitting U.S. households and NPISH.

In making the estimate, we allocate retained earnings to sectors in proportion to the value of shareholdings. This requires an assumption that the ratio of retained earnings to the value of the shares of U.S. issuers is the same for each sector that holds these shares. Another assumption is that the ratio of retained earnings to share values for foreign issues held by U.S. residents is the same as for the U.S. issues held by anyone. In addition, we do not remove the realized holding gains that are currently included in the property income used for premium supplements when we add the retained earnings on shares held in insurance reserves because we lack data on the realized holding gains. Finally, in some cases, the data do not allow us to trace the ownership chain for indirectly held shares back to the ultimate beneficial owner. In particular, some shares that U.S. residents hold indirectly through offshore investment vehicles are treated as being owned by the rest of the world.

When retained earnings are passed through to shareholders, the increases in household income are quite substantial, except in the financial crisis year of 2008. In 2009–13 they range from $594.5 billion to $883.3 billion (first panel of Table 7). Employer-sponsored pension schemes play an important role in this effect, typically accounting for almost a third of the increase in household income. Reserves for annuities from life insurers, which can substitute for pension schemes, also make a small contribution.

The next panel of Table 7 shows that our proposal greatly reduces the role of holding gains in funding defined benefit pensions.[22] In particular, in 2009–13, holding gains range from –$37.8 billion to $49 billion under our proposal, compared with a range of $132.4 billion to $172.2 under current methods. Replacing holding gains with property income going to the pension scheme will allow the measure of household income from accruals of pension entitlements in the NIPAs to be significantly more accurate, because the NIPAs exclude benefits funded with holding gains from their measure of the income that households receive from

[21]Details on the calculations of the effects of rerouting retained earnings are available in online Appendix 1.

[22]The holding gains are called "implied funding of benefits from holding gains" in the NIPAs because they reflect the gap between the assumed interest rate and the actual rate of return excluding holding gains on the pension fund assets.

TABLE 7

Retained Earnings Routed to Final Holders (Billions of U.S. Dollars)

	2007	2008	2009	2010	2011	2012	2013
Households and NPISH, held directly, in mutual funds or non-life insurance technical reserves	**182.0**	**111.8**	**356.3**	**537.3**	**483.1**	**464.4**	**440.2**
Reserves for annuities from life insurance companies	15.9	10.8	37.7	55.5	50.2	48.7	44.2
Defined benefit pension funds	55.2	36.2	119.7	170.2	146.4	136.0	123.2
Defined contribution pension funds	38.5	24.6	80.8	120.4	105.8	99.2	95.0
Households and NPISH, including from pensions	**291.6**	**183.4**	**594.5**	**883.3**	**785.5**	**748.2**	**702.6**
Effect on sources of change in DB pension wealth							
Holding gains[a]	157.2	136.0	119.4	132.4	146.2	147.4	172.2
Less: Retained earnings on shares held by DB plans	55.2	36.2	119.7	170.2	146.4	136.0	123.2
Holding gains with retained earnings rerouted to shareholders	102.0	99.8	−0.3	−37.8	−0.2	11.4	49.0
Effect on saving of households and NPISH							
Saving, households and NPISH as currently measured	310.3	542.2	672.0	628.0	711.1	896.2	608.1
Saving, households and NPISH, with retained earnings	601.9	725.6	1266.5	1511.3	1496.6	1644.4	1310.7
Saving rate, households and NPISH, as currently measured	3.0	4.9	6.1	5.6	6.0	7.2	4.9
Saving rate, households and NPISH, with retained earnings	5.6	6.5	11.0	12.5	11.9	12.5	9.9
Effect on net national saving							
National saving, net of CFC, NIPAs	**236.5**	**−89.5**	**−295.8**	**−126.1**	**−15.1**	**295.4**	**406.8**
Plus: Retained earnings on U.S. portfolio investment in the ROW	75.0	49.1	158.5	252.9	224.2	213.9	201.4
Less: Retained earnings on ROW portfolio investment in the U.S.	45.2	31.1	110.9	172.8	164.9	169.1	165.0
Net national saving with retained earnings	**266.3**	**−71.6**	**−248.2**	**−46.0**	**44.3**	**340.2**	**443.2**

[a]Implied funding of benefits from holding gains as reported in NIPA Table 7.21.

accruals of pension entitlements. (Note that including the benefits funded by holding gains in household income would just create a different distortion somewhere else because the saving of the pension fund would become negative. As long as holding gains are the source of the funding for the benefit promises, a distortion will exist somewhere.)

The third panel of Table 7 looks at the effect on household saving. Low household saving rates have long been a concern to U.S. policymakers, but household saving is much higher under our proposal. Except in 2008, household saving almost doubles or more than doubles. In 2010, for example, household saving with retained earnings passed through is $1511 billion, compared with $628 billion under current methods, and the household saving rate is 12.5 percent, compared with 5.6 percent under current methods.

Finally, the last panel of Table 7 shows that U.S. residents benefit from slightly more retained earnings on equity held in portfolio foreign investment than residents of the rest of the world do from equity held in portfolio investment in the U.S. As a result, U.S. national saving is slightly higher under our proposed approach.

4.5. *Summary*

An alternative approach in which retained earnings of corporations are passed through to shareholders who then reinvest them would provide a better measure of the saving of shareholders for many purposes. The advantages of this approach are especially compelling when there is a controlling shareholder, such as a government that owns a public corporation. Information on saving of general government with the retained earnings of public corporations passed through to the government could be provided within the existing framework by published a supplemental account for public sector. In empirical tests of the alternative approach, we find U.S. household saving to be much higher when retained earnings pass through to shareholders. Furthermore, passing through retained earnings would eliminate a spurious funding gap for defined benefit pension schemes that rely on holding gains on corporate equities to fund benefits.

5. Adjusting the Income and Assets of Creditors for Bad Debt Losses

5.1 *Theory and effect on GDP*

In the SNA, bad debt losses are not considered when measuring the interest income of lenders. Negotiated agreements to reduce the amount owed and voluntary forgiveness of debts by creditors are treated as capital transfers, not as current transactions. Write-offs of loan balances that are uncollectable are recorded in the OCVA account (*SNA* 12.39–12.40). In practice, compilers usually treat all loan write-offs by financial institutions as OCVA because the source data do not distinguish the portion of the write-offs linked to loan forgiveness.

The SNA's approach to bad debt expenses is necessary to avoid distorting the picture of the debtor's saving—failing to make required payments should not

be shown as saving by the debtor![23] Nevertheless, losses from default ("credit losses") are such a fundamental part of the lending business that a realistic picture of the income, net worth and leverage of financial corporations that engage in lending cannot ignore them.

Lenders are able to extend credit to risky classes of borrowers whose probability of default can be predicted with reasonable statistical accuracy by increasing the contractual rate of interest to be paid by the borrowers in the class sufficiently to cover the expected losses from defaults.[24] In other words, when calculating the rate of interest charged on a loan, banks take into account the risk of default in addition to their own financing costs and the maturity of the loan. The contractual rate of interest is not expected to be collected by the bank over the entire life of the loan, as defaults may occur several years after the loan was originated.

In this section, we consider two alternative treatments for the interest component meant to cover expected losses from default. The first alternative excludes the expected losses from the interest margin used to measure implicitly priced services to borrowers (FISIM on loans) but not from the lender's overall interest income. Reducing the estimate of FISIM on loans will reduce the estimate of GDP to the extent that these services to borrowers are used for final consumption purposes by households, NPISH and government or are exported. However, nonfinancial corporations or other producers are likely to consume most of these services.

The second alternative for adjusting for default losses reduces both FISIM and the total income of lenders. If the alternative that reduces the income of lenders is implemented in the core national accounts, either the saving of the borrowers must increase or an adjustment item would have to be incorporated to explain the wedge between what the borrowers pay and what the lenders receive. To avoid having to choose between the two unsatisfactory alternatives of overstating the saving of borrowers or complicating the accounts with an adjustment item, we prefer to put the adjusted income of lenders with expected default losses excluded in a supplementary account.

5.2. *Adjustments to output and income of lenders*

Hood (2013) calls the component of the interest rate that is intended to cover losses expected at the time the rate is set the default margin.[25] Two alternatives for taking account of the default margin are available, one that just reduces the measure of banks' output and another that reduces both their output and their disposable income. Output is affected because the SNA measures implicit

[23]The approach is also consistent with a policy of including goods and services in output even if their buyer fails to pay the invoice. If the goods and services are counted in production, the past due payments must be included in the producer's income to maintain the identity between production and income.

[24]The expected loss equals the expected size of the loss given default times the probability of default.

[25]Hood (2013) measures the loan interest rate from the interest income reported by the lender, which already excludes interest that is not collectable. Since most losses of interest are accounted for in the effective interest rate, the default premium primarily covers losses of principal. In contrast, if a contract rate of interest is used, then the default margin must cover losses of both principal and interest.

purchases of services used by borrowers (the borrower component of FISIM) from the spread between the interest rate on loans and the reference rate. Because the interest that is set aside to cover losses from default is not available to cover the cost of producing services, we propose that it be excluded from FISIM. The default margin should be subtracted from the loan interest rate, and the spread between the adjusted loan rate and the reference rate used to measure FISIM consumed by borrowers.

Excluding expected default losses will make the procedures used to measure the output of lenders more consistent with those used to measure the output of non-life insurers: Expected claims are subtracted when calculating the output of non-life insurers to reflect the need to use some of the gross premiums received from policyholders to cover expected claims for losses (*SNA* 17.21, 17.27). Excluding expected default losses will also allow the national accounts to present a more meaningful picture of the output of depository institutions. For example, after the financial crisis, the unadjusted measures of FISIM showed that banks in the U.S., France, and the U.K. (and probably other countries, as well) showed rising output even though the banks were reducing their lending and reporting declines in income. In the U.S., banks' output of services to borrowers was shown as growing by 45 percent between 2007 and 2011 before NIPAs began to exclude the default premium from FISIM, but after the NIPAs incorporated an adjustment for the default premium, the growth over this four year interval was a more plausible 1 percent (Hood, 2013).

The effect on the bank's overall income of adjusting FISIM for default losses depends on how the residual that remains after reclassifying a portion of the interest paid to the bank as FISIM is calculated. This residual is known as "SNA interest" (*SNA* 6.164) or "pure interest" (*Balance of Payments Manual*, IMF, 2009, 11.75). In the U.S. national accounts, the full amount of the interest received by the bank is used to calculate this residual, so the reduction in FISIM on loans to exclude the default premium causes an equal increase in SNA interest. This means that a larger share of the lender's overall income is categorized as property income (Hood, 2013).[26]

Although a correction of FISIM for default losses would be an important step forward for the SNA, it would not provide a full picture of the lender's situation. Disposable income and saving must also take expected default losses into account.[27] A measure of the income of lenders that is adjusted to reflect expected losses would be consistent with the concept of expected income that Hicks viewed as relevant for business decision making. The loan interest rate that excludes the default margin should therefore be used to calculate SNA interest.

In the case of the balance sheet account, the SNA already advises showing a provision for the expected default losses on loans as supplementary information

[26]Wang, Basu and Fernald (2009) and Basu, Inklaar and Wang (2011) also adjust for the default margin, but in addition, they include a risk premium in the reference rate. This risk premium reflects the compensation for risk bearing required by the equity investors in the bank and is not deducted from the bank's overall income. Colangelo and Inklaar (2012) also include risk premia in the reference rates used for calculating FISIM.

[27]Dividend distributions are subtracted in calculating disposable income of corporations in the SNA, so for most types of corporations, saving and disposable income are the same.

(*SNA* 10.211 and 13.67).[28] Our proposal to provide information on flows of expected default losses during the accounting period will therefore complete the picture. Furthermore, in addition to improving consistency within the SNA, our proposal to show provisions for expected default losses during the accounting period would enhance consistency with monetary statistics standards. The *Monetary and Financial Statistics Manual* (IMF, 2000) has detailed recommendations on showing expected loan losses as memorandum items for use in obtaining alternative valuations of loan portfolios, and the *Monetary and Financial Statistics Manual and Compilation Guide* also shows provisions for loan losses as part of the OCVA account (IMF, 2016).

The measures of income and saving of lenders with default losses excluded could be presented either in the core national accounts or as supplementary information. If they are presented in the core accounts, the provision for expected default losses arising during the accounting period will also have to be reported as an adjustment item that shows the effect of adopting different approaches when measuring amounts paid by debtors and amounts received by creditors. This adjustment item will prevent the discrepancy introduced by using different approaches for resident debtors and creditors from causing a distortion when the sectors of the debtors and creditors are combined. (The adjustment item will be added when the saving of each resident sector is summed to arrive at national saving, and also when the balance of primary incomes over every resident sector is summed to arrive at national income.) However, to avoid complicating the core accounts, we favor the simpler approach of reporting expected default costs and the net measures of income and saving as supplementary information.

5.3. *Examples based on credit card lending*

As an example of the average default rate for loans in the U.S., in 2013 commercial banks had 431 billion dollars of interest income from loans of $7.246 trillion, and recorded net charge-offs (write-offs) of $50 billion. The effective interest rate was therefore 5.9 percent and the charge-off rate was 0.7 percent. (Note that the interest income that the banks accrue excludes uncollected interest on nonperforming loans, so some losses are deducted from interest income rather than being included in the charge-off rate.) If we take average net charge-offs as an indication of the size of expected default losses, accounting for these losses would reduce interest income from loans by almost 12 percent. Deducting provisions for expected losses would reduce the estimate of saving of financial corporations of $101.7 billion from the Integrated Macroeconomic Accounts (IMAs) by nearly half. It would also reduce the entrepreneurial income of financial corporations by 6 percent.

[28]Bloem and Gorter (2001) provide the background for this recommendation. Either the market value or a nominal value net of expected default losses may be shown. The market value of a loan depends on the relation between the size of the default premium embedded in the contract interest rate and current expectations for default losses. The market value equals the nominal value if the contract interest rate includes a default premium that covers the expected losses and provides the required compensation for risk-bearing.

Default margins vary widely by type of loan because of differences in collateral and in borrower characteristics, and they can be quite large in some types of unsecured lending. Credit cards in the U.K. provide a stark example of need to account for default margins when measuring FISIM. Barwell and Burrows (2011, p. 28) show write-off rates that for credit card debt in the U.K. in 1994–2007 that ranged from a low of 1.25 percent in 1996 to nearly 7.5 percent in 2007, with a mean of around 3.5 percent. They also show that the margin over the inter-bank rate (which is used as the reference rate) interest rate on credit card debt in the UK had averaged around 7 percentage points. Thus, on average, around half of the margin on credit card loans counted as FISIM under the currently recommended procedures is actually needed to cover losses from default.[29]

Credit cards also have relatively large default losses in the U.S. Credit cards in the U.S. have benefitted from a long history of development and experimentation, founded on aggressive competition across banking institutions, that has made credit available to a very wide spectrum of consumers, even those with poor credit records. For example, in 2013, U.S. commercial banks had, according to aggregate Call Report data, net charge-offs on credit card loans of $22 billion, or 3.3 percent of the loan balances of $659 billion. The average effective interest rate (calculated as interest accrued divided by loan balances and hence net of uncollectable interest) on domestic credit card loans was 11.8 percent. If we use the net charge-off rate as an estimate of the *ex ante* default margin, then the interest rate on domestic credit card loans is reduced to 8.5 percent.

To examine credit card lending in the U.S. in more detail, we constructed a data set of the Call Reports from 2001 to 2013 from U.S. banks that were predominantly credit card banks (at least 70 percent or more of their loans in credit cards) or that had large credit card portfolios (at least $10 billion). These banks represent more than 85 percent of all bank credit card balances in the U.S. We then estimated the default margin as a moving average of net charge off rates using techniques and assumptions described in online Appendix 2.

As shown in Table 8, over the entire period from 2001 to 2013 the credit card interest rate averaged 12.84 percent. The average reference rate (interest expense rate) was 3.21 percent, implying net interest margin of 9.63 percent. The average default margin was 5.66 percent, leaving a margin of 3.98 percent to pay for the services comprised by borrower FISIM.

Table 9 translates these rates into dollar terms based on credit card loans at domestic offices of U.S. banks.[30] In 2013, interest from domestic credit cards is $71.8 billion for the banks in our data set. The provision for losses implied by the

[29]The high write-off rate on U.K. credit card debt in 2007 provides an example of an instance when a balance sheet provision is needed to value a loan portfolio. In 2007 the margin between the interest rate on credit card debt and the reference rate is not large enough to cover the default rate even without allowing for the amount needed for FISIM.

[30]The jumps in 2010 of the time series shown in Table 9 reflect the fact that previously roughly half of credit card balances were held off the balance sheet in securitized pools. With securitization, banks receive income from providing services through profits on the sale of the securities and fees charged to securitization pools. To the extent that services are not fully measured for off-balance-sheet intermediation, when loans providing services to household are held off bank balance sheets, financial services may be understated.

TABLE 8

U.S. Credit Card Implied Service Rate and Related Data, 2001–13 (Percent per year)

	Interest Rate	Reference Rate	Interest Rate Margin	Net Charge-off Rate	Default Margin	Implied Service Margin
2001	**14.02**	**5.43**	**8.59**	**5.35**	**5.35**	**3.23**
2002	12.92	3.58	9.34	6.54	5.65	3.69
2003	11.87	2.78	9.08	5.64	5.65	3.44
2004	11.92	2.76	9.16	4.87	5.45	3.71
2005	11.77	4.35	7.42	4.83	5.30	2.12
2006	14.68	6.83	7.86	4.09	4.99	2.86
2007	13.35	6.26	7.09	3.94	4.73	2.36
2008	12.75	3.72	9.03	5.75	4.99	4.04
2009	12.42	1.68	10.74	9.39	6.09	4.65
2010	12.72	1.29	11.43	9.46	6.93	4.50
2011	13.69	1.24	12.45	6.51	6.83	5.62
2012	12.28	0.97	11.30	3.97	6.11	5.19
2013	12.56	0.80	11.77	3.50	5.46	6.31
Average	**12.84**	**3.21**	**9.63**	**5.68**	**5.66**	**3.98**

Authors' calculations based on US Call Reports and IMAs. See Appendix 2.

default margin is $31.2 billion, leaving $40.6 billion in adjusted interest income from credit card lending. Using the reference rate, this may be divided into SNA interest of $4.6 billion, and borrower FISIM of roughly $36.1 billion, slightly larger than the provision for default losses. Looking at annual averages over 2001–13, interest on domestic credit card balances averages $42.6 billion and the provision for default losses averages $19.5 billion, leaving adjusted interest income from credit card lending of $23.1 billion. This may be split into borrower FISIM of $14.6 billion and SNA interest of $8.5 billion. In contrast, without the adjustment for expected default losses, FISIM would be $34.1 billion.

TABLE 9

U.S. Credit Card Services and Loss Provisions (Billions of current dollars)

	Credit Card Interest Received	Provision for Default Losses	Interest Income, net of Default Loss Provision	Interest Expense implied by Reference Rate	Borrower FISIM
2001	23.1	8.8	14.3	9.0	5.3
2002	25.8	11.3	14.5	7.2	7.4
2003	24.5	11.7	12.9	5.7	7.1
2004	31.7	14.5	17.2	7.3	9.9
2005	32.9	14.8	18.1	12.2	5.9
2006	32.1	10.9	21.2	14.9	6.3
2007	34.5	12.2	22.3	16.2	6.1
2008	35.5	13.9	21.6	10.4	11.3
2009	36.5	17.9	18.6	5.0	13.7
2010	71.3	38.9	32.5	7.2	25.2
2011	64.0	31.9	32.1	5.8	26.3
2012	70.2	34.9	35.2	5.6	29.7
2013	71.8	31.2	40.6	4.6	36.1
Average	**42.6**	**19.5**	**23.2**	**8.5**	**14.6**

Authors' calculations based on US Call Reports and IMAs. See Appendix 2.

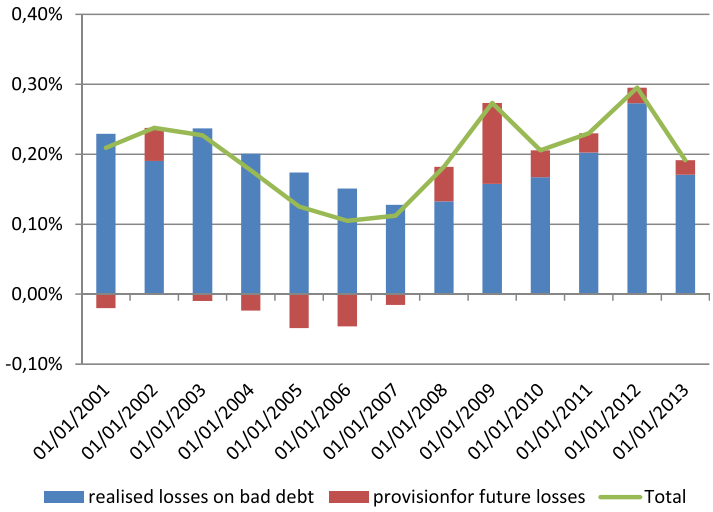

Figure 2. Realized losses on bad debt and annual provision for future expected losses, monetary financial institutions of France (As a percent of total outstanding loans of financial institutions) [Colour figure can be viewed at wileyonlinelibrary.com]

5.4. *Example based on loans made by financial institutions in France*

We use loans from monetary financial institutions in France for a more general example of accounting for expected losses from default. In this case, we calculate the expected losses from defaults based on realized losses of the year and net provisioning for losses on loans of the year.[31] In France, banks' net provisions for losses predicted the increase in losses after the crisis quite well (Figure 2). Due to the principle of prudence that drives the provisioning process and the lags before definitive losses on loans are recognized by banks, starting in 2008 our estimate of expected losses is greater than the loan write-offs that are recorded in the "other changes in volume of assets" account. Net provisions for credit losses are sensitive to economic activity: Usually, risks build up unnoticed in "boom" periods, when credit growth is rapid, and become evident once a downturn starts, leading banks to restrict credit availability. During downturns, when default rates start to rise, provisioning by banks tends to be high, while the reverse is true in boom periods.

Data on realized credit losses by type of borrower could be used to allocate the realized credit losses and net provisioning for future losses between borrowing sectors, but these are not directly available in the profit and loss account. We allocate the losses using as a proxy for these data the structure by counterpart sector as defined in the prudential regulation (the so-called Basel portfolio) of expected losses (internal model portfolio) and provisions (standard portfolios). This is a rough approximation, as Basel portfolios are only available on consolidated

[31]The provisions reduce the bank's reported income when they are taken. Subsequently, steps to recover the amounts in default, such as contacting the borrower or the guarantor of the debt, may result in a recovery of the amounts that were expected to go unpaid. The provision will then be reversed, increasing the bank's reported income.

TABLE 10

Default Losses on Loans compared with FISIM and Loan Balances, Monetary Financial Institutions in France (In € billions unless stated differently)

	2008	2009	2010	2011	2012	2013
Loans						
Outstanding loans granted, including to banks	5108	5049	5176	5889	5748	5572
"SNA interest" received	*286*	*202*	*151*	*180*	*171*	*139*
Total output, FISIM and fees	106	120	127	123	126	129
Adjustment for expected default losses	7	10	8	10	13	8
Corrected output	100	110	119	114	113	121
Expected default losses as percent of output	**6.1**	**8.1**	**6.1**	**7.9**	**10.3**	**6.2**
Adjustment to the Interest Rate on Loans						
Apparent interest rate on loans, percent per year	6.7	5.6	5.5	5.3	5.2	5.0
Cost of expected losses, as percent of loans outstanding	0.1	0.2	0.1	0.2	0.2	0.1
Adjusted interest rate on loans	6.6	5.4	5.4	5.1	5.0	4.9
Of which, loans to:						
Nonfinancial corporations						
Outstanding debt	1887	1829	1847	1994	2025	2037
"SNA interest" paid	*106*	*73*	*54*	*61*	*60*	*51*
Adjustment for expected default losses	4	6	4	5	7	5
FISIM, corrected for expected default losses	34	43	71	72	72	81
Gross disposable income, national account	173	165	191	191	185	182
Expected losses as a percent of gross disposable income	2.2	3.4	2.3	2.7	3.8	2.5
Saving less net capital transfers paid	190	183	208	209	202	199
Expected losses, percent of saving less capital transfers	2.0	3.1	2.1	2.4	3.4	2.3
Adjustment to the Interest Rate on Loans						
Apparent interest rate on loans	7.6	6.7	7.0	6.9	6.9	6.7
Cost of expected losses as percent of loans outstanding	0.2	0.2	0.2	0.2	0.3	0.2
Adjusted interest rate on loans	7.4	6.5	6.8	6.7	6.6	6.5
Households						
Outstanding debt	955	1004	1057	1111	1135	1158
"SNA interest" paid	*54*	*40*	*31*	*34*	*34*	*29*
adjustment for expected default losses	2	4	4	4	5	3
Consumption of borrower FISIM, corrected	9	23	44	50	38	46
Adjusted gross disposable income, national account	1579	1592	1633	1666	1681	1698
Expected losses as a percent of gross disposable income	0.1	0.3	0.2	0.3	0.3	0.2
Saving less net capital transfers paid	185	202	200	200	194	194
Expected losses, percent of savings less capital transfers	1.1	2.0	1.8	2.2	2.8	1.7
Adjustment to the Interest Rate on Loans						
Apparent interest rate on loans	6.8	6.7	7.5	7.9	6.8	6.7
Cost of expected losses as percent of loans outstanding	0.2	0.4	0.3	0.4	0.5	0.3
Adjusted interest rate on loans	6.6	6.3	7.2	7.5	6.3	6.4

Source: National accounts plus data reported by banks to the ACPR–authors' calculation.

accounts that include foreign subsidiaries. In addition, the Basel portfolios do not precisely match the institutional sectors of national accounts. (The main divergences are the inclusion of small businesses with households in the retail portfolio, and the inclusion of central banks in general government.)

As shown in Table 10, on average over 2008–13, expected default costs represent 3 percent of the total interest received on loans by financial institutions. Taking account of expected default losses over this period would therefore reduce the apparent average interest rate of 5.5 percent received by banks from all counterparties, including other banks, by 0.2 percentage points. Their effect on the measure of the production of financial institutions (which excludes output consumed by other banks) is more significant, averaging 7.5 percent of the total output

(FISIM and fees). Thus, neglect of default losses causes a significant overstatement of FISIM, which is a major component of the measured output of banks.

For reference, Table 10 also shows approximate estimates of the effect of measuring the interest paid by nonfinancial corporations and households excluding the amounts used by the lender to cover expected losses. Although debt that is not repaid cannot be treated as saving by the borrower, amounts advanced and never repaid are a source of funds that supports the borrower's spending. Thus, an estimate of what the saving of the borrower would have been had that spending not occurred is of interest for analytical purposes.

Households appear to be relatively risky borrowers (though it should be borne in mind that the period under scrutiny is one of especially high risk). Their expected costs from defaults average 0.4 percent of outstanding loans and 5 percent of interest paid, compared to 0.2 percent and 3.1 percent, respectively, for non-financial corporations. Taking account of default losses lowers an apparent cost of debt of 7.0 percent for non-financial corporations by 0.2 percentage points, and an apparent cost of debt of 7.1 percent for households by 0.4 percentage points.

5.5. *Summary*

Lenders are able to make loans to risky borrowers by including a margin needed to cover the expected default losses in the interest rate charged on loans. Money put aside to cover expected losses is not available to pay for services, so the default margin should be excluded when calculating FISIM consumed by borrowers. Furthermore, supplementary measures of both income and loan assets that take expected losses into account are needed to have a complete picture of the situation of the lender. In our numerical examples for credit cards, taking account expected losses reduces estimated FISIM by half or more, and substantially reduces the net income of the lender. Even at the aggregate level of loans in general, they have significant effects on measures of borrower FISIM and the interest income of lenders.

6. An Area for Further Research

The SNA includes a detailed discussion of standardized guarantees that provide protection against losses from default (17.207–17.224), but it does not provide specific guidelines on how to account for insurance on deposits or on employer-sponsored pensions. These institutions have some unique features, so research to develop specific recommendations on them would be helpful.

The SNA mentions deposit insurance briefly, stating that "deposit insurers, issuers of deposit guarantees, and other issuers of standard guarantees that are separate entities and act like insurers by charging premiums and have reserves, are classified as insurance corporations" (*SNA* 4.115). However, this recommendation is subject to debate. The main argument against the recommendation to treat deposit insurers as insurance corporations is that bank failures are infrequent events with unpredictable costs, making meaningful reduction of uncertainty through pooling of risks impossible. Pooling of risks

and the ability to estimate expected losses is a feature that distinguishes standardized guarantees from one-off guarantees, which are not treated like insurance (*SNA* 17.213).

Another characteristic of deposit insurance is that the financial assets of the depositors do not rise when payments are made to protect depositors, as the payments merely prevent their financial assets from falling due to default losses. Showing the payments from the deposit insurer as either a current transfer or a capital transfer to the depositors would increase the figure for their net lending reported in the accounts, misleadingly implying that the depositors have acquired financial assets. However, *SNA* paragraph 17.220c routes all calls under standardized guarantees to the debtor, not the protected creditor. Applying this principle to deposit insurance would make all the payments to protect depositors transfers to depository institutions. The upward effect of these transfers on the estimate of the net lending of depository institutions would be misleading for some purposes, but if supplementary information is already being published on default losses suffered by banks, clarifying information on the transfers from the deposit insurer can accompany the information on the banks' losses.

7. Conclusion

This paper discusses three kinds of proposals to better elucidate the role of finance in the economy. For holding gains and losses, we propose a supplemental measure of income plus holding gains or losses. In addition, the identification of apparent holding gains that are in reality attributable to production is clarified and illustrated with an application to storage of seasonal commodities using data from the U.S. and an application to the measurement of liquidity services of market makers and securities underwriters using data from France.

The second proposal involves rerouting reinvested earnings of corporations to the shareholders. The case for doing this is particularly strong in situations where a controlling shareholder is present, such as in the case of FDI (where it is already done) and public corporations. In addition, an illustration using data from the U.S. on defined benefit pension plans showed that this rerouting would provide a more accurate picture of the gap between the income of defined benefit pension funds and their expenses for benefit accruals. Finally, a supplementary presentation of the accounts of the public sector is a good way to provide a consolidated measure of government saving with reinvested earnings of public corporations passed through to the government.

The third proposal is to provide supplementary measures of the disposable income of lenders that take into account expected losses from defaults and to deduct the expected losses when calculating FISIM on loans in the core accounts. When banks shift into riskier types of lending, such as credit card lending, or when general financial conditions become riskier, the income growth of banks will be overstated without a provision for their higher expected losses. Their output growth will also be overstated if the interest needed to cover expected losses is included in FISIM.

Besides these specific proposals, this paper identifies deposit insurance as an area where further research is needed to clarify the recommendations of the SNA. Finally, a more general lesson of this research is the need to use memorandum items or supplementary accounts to provide a complete picture of key macroeconomic developments whenever the consistency constraints of the core national accounts limit their flexibility to provide all of the relevant information. As another example in addition to those discussed above, a supplementary account could deduct a depletion charge from the rent that owners of exhaustible natural resources receive from the extractors of those resources to provide information on their sustainable income.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Appendix 1: Steps to Reroute Retained Earnings to Ultimate Beneficiaries Illustrated with US Data

Appendix 2: Calculations for Example of US Credit Card Lending