Balance-Sheets: A Financial/Liability Approach

A Concise Macro-Financial Framework: SNA Theory and Concepts

Rapid Estimates of Market Valued Non-Financial Assets and National Wealth

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Content

Balance-sheets. A financial/liability approach.

A rather common view is that academics and other economic analysts do not fully comprehend the whole potential of the System of National Accounts (SNA). The SNA is often not seen as the prevailing tool for economic analysis. Reasons are among others that the System is considered to be targeted mainly to administrative uses such as for fiscal policy and international comparisons and that the architecture of the System is more or less cut in stone.

My experience from the areas of saving, wealth and financial accounts is that there seems to be some lack of knowledge about SNA concepts; e.g. the narrow definition of income and savings

Maybe potential users of the SNA should be encouraged to be more flexible and experimental without deviating from SNA definitions of units and concepts. By doing so it would be possible to rearrange accounts and compile alternative aggregates and balancing items. Thereby it would be possible to build accounts that satisfy special needs.

This paper intends to illustrate how such an alternative approach could be performed. It is based upon two previous papers presented at poster sessions at the IARIW general conferences (Bergman 2010 and Bergman 2012)

So why a new version on this topic? First, the SNA 2008and the European Accounts (ESA 2010) have been implemented in the official statistics (September 2014 in Sweden). In particular valuable for this study is the extended definition of non-financial capital and the general market valuation of assets and liabilities. Second, time series (1980 – 2011) of non-financial capital perpetual inventory method (PIM) calculated has been provided in the official statistics. These improvements have created a more stable basis for this study. And third some theoretical input has been added since 2012. See Piketty (2014) who defines national wealth (as the total public and private net assets at market value) identical to the approach presented below.

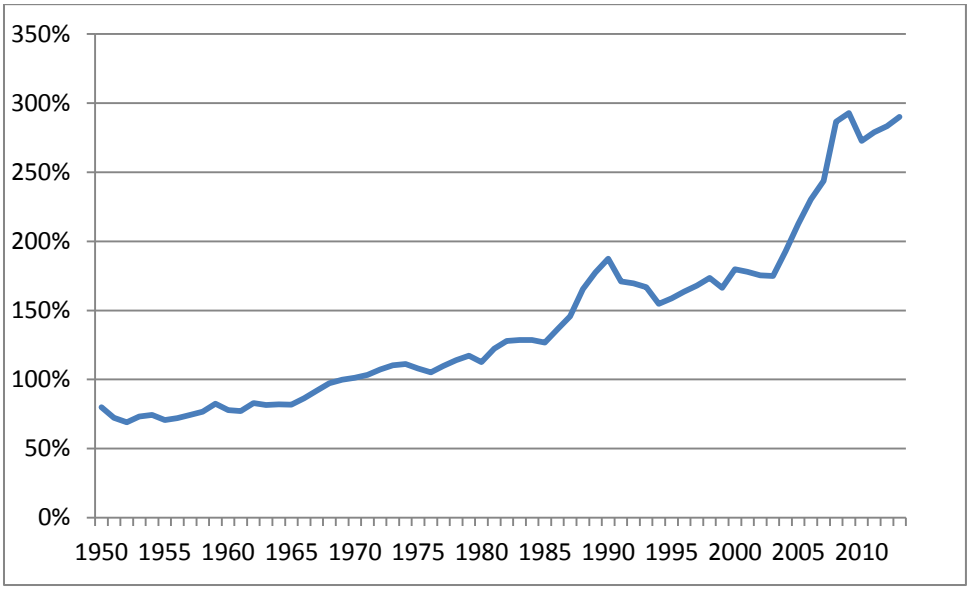
1. Introduction

The global financial and debt crises in recent years have highlighted the role of macroeconomic financial data, in particular on stocks and balance sheets, on the interaction between real and financial economy and on asset prices and capital gains. The turbulent economic development has thus strongly influenced sector balance-sheets. Total assets and liabilities have grown substantially for all domestic institutional sectors (government, financial and non-financial corporations, households) as for foreign assets and liabilities. The strong expansion of stocks can be explained by different kinds of economic events such as fiscal and monetary policy measures, sector savings and debt behaviour and international trade. Further value changes of assets and liabilities are important

factors. Changes in asset prices (mainly the stock exchange and housing prices) have thus generated large holding gains to the owners.

Balance-sheets are above all important as regards banks and other financial institutions. The figure below shows balance-sheet totals of banks' corporate units operating in Sweden As can be seen there has been a continuous rise in balance-sheets total over the latest six decades. Looking more closely at the current crisis and pre-crisis period it can be observed that there is first a steep rise of total assets and then a slowdown. This seems to be in line with the development in other countries, but. in Sweden a similar pattern can be observed for the previous financial crisis at the beginning of the 1990 ties – a quick rise some years before and then a decrease apparently back to the trend growth curve

Figure 1 Banks' total assets. Per cent of GDP. 1950- 2013



Source: Statistics Sweden. Financial accounts. Other monetary financial corporations operating in Sweden

The development of banks' balance-sheets over time illustrates the importance of stocks in macroeconomic theory and statistics[1]. Theory and modeling were however based in particular on economic transactions Balance sheets were often neglected. But in the wake of the financial crises there has been an increasing interest in debt issues Stocks, mostly outstanding liabilities and in particular government debt, are now top priorities. But this shift of interest may on the other hand have led to a too uncritical use and analysis of stock variables. The government debt concept is a significant example: it is implicitly understood that the size of government debt is a good measure of the healthiness of public finance but the link between current deficit and debt change is weak, Further are government assets not at all considered and all liability items are not included in the debt concept. Still the focusing on government debt and not only on the deficit is welcome, - however, it seems that an overall analysis of balance-sheets and wealth for all institutional sectors and across sectors is in all essentials absent in macro-economic debate.

[1] Different aspects of stocks and balance-sheets are elaborated by Bergman, Djerf, Lindström. Statistics Sweden (2010)

And lastly, before turning to the substantial issues, let us consider first, that financial balance-sheet items always have counterparts in other institutional units, sectors and countries. In cases of exceptional changes in balance-sheets there will thus be an immediate corresponding effect for the counterpart. Second that stocks are much bigger in money terms than transactions and subsequently relatively moderate changes in balance-sheets structures can cause big flows (financial, revaluations) as compared with the transactions. These circumstances may have contributed to why the financial crisis did develop so surprisingly fast and strong. Relatively moderate changes in the sector balance-sheets (compared with levels of stocks) preceding the current crisis period thus caused big financial flows. This was noted for all institutional sectors – financial and non-financial corporations, government and household sectors and for the rest of the world sector but were obviously not paid enough attention among economic experts at that time.

2. Theory and concepts

In this part some theoretical issues regarding balance sheets will be elaborated, based in all essentials on the SNA 2008.

2.1 What is capital?

There are two different aspects of capital and balance sheets. The first is to regard capital as *storage of wealth*. Here the assets and liabilities of institutional sectors are recorded at current market prices, as is the case in financial markets statistics and in business accounting. The other aspect is to regard capital as a *source of capital services* i.e. the impact of capital on operating surplus, consumption of fixed capital and capital taxes. Capital services thus show productive assets contribution to total production and GDP, measured in volume and at fixed prices. In this paper the second aspect of capital is left out; concentrating on the first one – the storage of wealth.

2.2 Flows and stocks

In the national accounts there are in principle two kinds of economic variables – flows and stocks. Flows are economic activities that take place during a certain period of time while stocks are balance-sheet items in the form of assets, liabilities and wealth at a particular point of time. Flows in the form of so called transactions are dominating in national accounts statistics, macroeconomic analysis and modeling. Focus is on the GDP and its components (consumption, capital formation, export/import, production, wages and operating surplus). Other examples of flows are property income and transfer income as well as financial transactions (lending and borrowing). All changes in stocks between two periods of time are thus flows meaning that also e.g. changes due to asset price changes are defined as flows.

Stocks consist of different kinds of non-financial capital and financial assets and liabilities. Stocks are building stones in a balance-sheet, which in its most simple form can be compiled as follows:

Table 1 A simple balance-sheet

Assets	**Liability side**
Non-finncial assets	Liabilities
Financial assets	Equity / Net worth
Balance sheet total	Balance sheet total

For each balance-sheet item there is a relation between flows and stocks during any period, t

- *Opening balance (OB) + flows (F) = closing balance (CB)*

For financial assets and for produced non-financial assets this implies that the value of a stock at a certain moment is always the accumulated value of all proceeding historical flows.

2.3 Valuation

Excerpts from SNA 2008:

13.16 For the balance sheets to be consistent with the accumulation accounts of the SNA, every item in the balance sheet should be valued as if it were being acquired on the date to which the balance sheet relates

13.18 Ideally, observable market prices should be used to value all assets and liabilities in a balance sheet.

13.89 Further, the market value of shares reflects market sentiment about future income streams which may fluctuate with much more volatility than the underlying value of the corporation.

Market values thus naturally fluctuate strongly due to external factors and short term supply and demand of capital. But, even if so, the underlying nature of market values is that the capital stock is expected to generate some kind of economic benefit to the economic owner of the asset. The economic benefits consist of all income from using or owning assets (operating surplus, property income, holding gains). It was stated above that a stock is built up from historical flows but in order to explain the market value of a stock we must look into the future. Accordingly, the market value can therefore be expressed as the present value of the owner's expected future economic benefit of the capital stock.

2.4 Capital moves economic benefit over time

Excerpts from SNA 2008

3.19 The heart of the SNA describes how labour, capital and natural resources including land are used to produce goods and services. These goods and services are used for the three economic activities recognized in the SNA, production, consumption and accumulation. An economic benefit is defined as denoting a gain or positive utility arising from an action. It implies a comparison between two states. This can be elaborated within the SNA so that benefits are seen as rewards for providing services, such as those of labour and capital to production and also the means of acquiring goods and services for production, consumption or accumulation in the current period or in future periods.

The main economic activities (production, consumption, capital formation) differ as regards the time-lag of economic benefit that is allocated to the economic owner. Production and capital formation mean that expected economic benefits are put forward in time in the form of capital stocks (buildings, machinery, equipment). Consumption, on the other hand does not generate capital stocks since consumption is assumed to take place in "current period", i.e. is defined as consumption *expenditures* and not as the actual use of goods and services by the consumer.

Financial capital is a special case. Financial assets and liabilities thus appear when benefits are exchanged between two institutional units by means of payments. The financial markets (involving

all financial assets and liabilities) hence move (expected) economic benefits in time (forward and backward) through savings and borrowing.

2.5 Income and holding gains –debated concepts.

The basic concept *Income* has a narrow meaning in the SNA. Only income initially derived from production (GDP) is included but so called *holding gains* are not. Holding gains (equal to capital gains) are a consequence of market valuation and arise when the value of an asset or liability increases or decreases due to price changes in the underlying asset/liability. Are holding gains income? Should they be included in savings? These questions are subject for debate[2].

The present SNA definition of income was settled in the SNA 1993 version following international discussions. See e.g. Peter Hill.(1989) As starting point of the discussions it was stated that the concept of income that is most widely accepted in economics and also in many fields of business accounting is that proposed by J.R. Hicks (1946) who suggested that income is *the maximum value which a person can consume during a given period and still expect to be as well off at the end of the period as he was at the beginning*

Then how can this Hicksian concept of income be in accordance with the narrow definition of income as stated above? Well, it does and it does not. Hill proposes modification one of which states that real holding gains should be excluded on the grounds that these are not foreseeable and thus not can guide consumer and savings behavior. However in an ex post perspective some holding gains are nevertheless recognized in the form of realized cash or other liquid assets holdings with low or no risk exposure.

The SNA Revaluation account (part of Other flows) include a detailed and well-reasoned section on holding gains, specified on nominal, real and neutral holding gains. But the Other flows accounts are not typically regarded as core info among users outside the statisticians' sphere and thus not normally in the midpoint of economic analysis.

But It should be mentioned on the other hand that in studies of household income and wealth distribution based among others on tax assessment material a broader income concept is used. In these statistics realized holding gains are parts of household income.[3]

Regardless the view on holding gains – income or not income - it's a fact that holding gains have had great impact on sector balance sheets. One example: Swedish households' accumulated growth of net wealth amounted to about 10000 billion SEK between 1980 and 2013. Of this amount only 23 percent came from transactions (savings) while as much as 77 percent derived from holding gains and other flows. See further section 3.6.6 below.

[2] Holding gains are on the Research Agenda in the SNA 2008. Clarification of income concept in the SNA ParagraphA4.23

[3] Statistics Sweden *Equalised disposable income by type of household*…

2.6 Ownership, risks

Excerpts from SNA 2008

3.21Two types of ownership can be distinguished, legal ownership and economic ownership. The legal owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled in law and sustainable under the low to claim the benefits associated with the entities.

3.23 The acts of production, consumption and accumulation involve varying degrees of risk. Two main forms of risk can be identified. The first sort refers to production.

3.24 The second type of risk refers to the process of transferring benefits between time periods. It arises because of uncertainty over interest rates in future periods, which in turn affects the comparative performance of different types of benefits.

2.7 Institutional units and sectors. Final owners, intermediate owners

When studying macro economy it is desirable to group the players that make decisions about their own economy. These are the *institutional units* which in turn are grouped on homogeneity in economic activity into *institutional sectors* (corporations, government, households).

In the case of capital stocks the ownership status of assets is fundamental for the analysis. Yet another concept is thus introduced in this context*: final owners and intermediate owners*. Households are defined as final while all corporations are defined as intermediate owners. Public authorities (the government sector) could potentially be regarded as intermediaries because they act on behalf of households, but since there is no identified equity capital (on the liability side) public authorities are categorized as final owners in this context.

A brief conclusion so far: The value of an asset corresponds to the present value of the expected economic benefit allocated to the disposal of an asset. Owning of assets is by necessity associated with different kinds of risks. Risks and expected return on investments are factors determining the market value of an economic asset.

3. A financial/liability approach

Traditionally national wealth and sector balance-sheets statistics are provided within the framework of national and financial accounts. SNA defined national and sector balance-sheets give certainly the most comprehensive picture of wealth. These accounts cover non-financial assets, financial assets and liabilities for all institutional sectors as well as for the whole nation (the national wealth). Nevertheless, national balance-sheets that are produced and published by statistical authorities have met with relatively low interest among users, at least in Sweden. Reasons could be that analysis and modeling has not yet been established and that that the time lag is too long (statistics are currently published almost two years after reference date)

In the following I will introduce an alternative to the traditional national wealth and sector balance sheets accounts. This model is essentially financial and has its main focus on liabilities while assets are compiled in many cases as residuals.

3.1 Fundamental ideas

1. Ideally market valuation is applied for all assets and liabilities generating any kind of benefit/return to the economic owner of an asset; included are consequently all assets within the SNA assets boundary, but also immaterial assets not included, like trademarks, intellectual property, organizational structures etc. regardsless they are purchased or not.

2. All corporations (financial and non-financial) are classified as intermediaries meaning they are at one hundred per cent owned by their owners and that they do not have any independent net worth. The total of liabilities thus exactly corresponds to sum of non-financial and financial assets in the corporate sector balance sheet.

3. Further I have extended the corporate sector by introducing notional units in the capacity as "owners" of final users (households, government) possession of non-financial capital. This operation is not necessary but I think it clarifies the compilation of total national wealth (see below). The Rest of the World sector is left untouched. The method of allocating non-financial capital via notional corporate units is already applied here.

4. As a result of points 1- 3 the final users sectors (households incl. NPISH and government) are now essentially financial, meaning they do possess only financial assets and liabilities.

5. Since there is no Net Worth in the extended corporate sector the total nonfinancial capital at market value can now be derived as a residual (liabilities less financial assets). See table 1.

6. The National Wealth at market value can now easily be compiled in two ways. As total net financial assets for households (incl. NPISH) and government or as non-financial capital at market value plus net foreign assets.

7. As a measure of the size of the total economy (now financial) the grand total can be shown specified on sectors and broad categories of financial instruments.

The above listed points are articulated in the following concise table. Example Sweden 2013.

Table 2. Balance sheets. Financial/liability approach. Sweden year end 2013. Trillion SEK.

		Institutional sector				
		CSE	**GS**	**HS**	**ROW**	**TOTAL**
Col/row		*1*	*2*	*3*	*4*	*5*
1	Fin. assets other than shares	18,5	1,7	5,3	7,3	32,8
2	Listed shares	5,7	0,7	1,5	2,0	9,9
3	Unlisted shares	7,2	0,6	2,7	2,6	13,2
4	Imputed owning real assets PIM		3,1	4,4		7,6
5	Total financial assets	31,5	6,1	13,9	11,9	63,4
6	Liabilities other than shares	21,9	2,2	3,3	5,4	32,8
7	Listed shares	6,8			3,0	9,9
8	Unlisted shares	9,6			3,6	13,2
9	Imputed owning real assets PIM	7,6				7,6
10	Total liabilities	45,9	2,2	3,3	12,0	63,4
11	Net financial assets	-14,4	3,9	10,6	-0,1	0,0
12	*= total non-financial assets	**14,4**				
13	*National wealth, market valued = 14,4 minus -0,1 = 14,5 trillion SEK at end 2013 or 3,9 plus 10,6 trillion.*					
	GDP 2013 is 3,8 trillion SEK approximately corresponding to 0,4 trillion euro.					

This table looks like any ordinary SNA financial balance-sheet table, with some exceptions: Total assets (r5/c5) are identical to total liabilities (r10/c5) since monetary gold is classified as liabilities in the corporate sector contrary to the SNA rules. The main difference, compared with the ordinary SNA, is the absence of net worth in the corporate sector and the imputed notional corporate units, consisting of final owners' possession of real assets (r9/c1). The table accordingly provides an extremely summarized picture of the total economy in financial balance sheet terms.

3.2 Explanations and comments on sectors and asset categories

Four institutional sectors are shown (*Corporations, extended, Households, Government and the Rest of the world*) and also four kinds of financial assets (*financial assets other than shares, listed shares, unlisted shares and imputed assets/liabilities for legal owning of non-financial assets*).

3.2.1 Sectors

1. **CSE** – **Corporate Sector, Extended**. Include non-financial corporations and financial corporations (central bank, banks and other monetary financial institutions, (MFI:s), other financial intermediaries, financial auxiliaries, insurance corporations, pension funds). Also included are imputed corporate units in the capacity of possessing households and government legally owned non-financial assets. The non-financial and financial subsectors are about equal in size as regards total liabilities while 60 percent of financial assets belong to the financial sector.

2. **GS – Government Sector**. Include central, local government and social security funds.

3. **HS – Households Sector**. Include persons, unincorporated enterprises and non-profit institutions serving households, NPISH.

4. **ROW- the Rest Of the World**. Foreign assets and liabilities (reversed sign).

3.2.2 Assets/liabilities

1. **Financial assets other than shares (and liabilities)**
   Include monetary gold and SDRs, currency and deposits, debt securities, loans, insurance, pension and standardized guarantee schemes, financial derivatives, employee stock options, trade credit and other accounts receivable/payable

2. **Listed shares**
   All shares listed on a stock-exchange including Investment fund shares.

3. **Unlisted shares**
   Include SNA categories unlisted shares and other equity. Observed market values are not available so an estimate is required. The SNA lists alternative methods of approximating market values. These are not ranked and each needs to be assessed according to circumstances and plausibility of results. In the Swedish financial accounts the Eurostat proposed model has been used. The figures on unquoted shares are nevertheless very uncertain. Unfortunately the estimates of unlisted shares possessed by households, government and the rest of the world are rather important for the final outcome of non-financial assets estimate and for the estimate of net national wealth at market value. This is accordingly the weakest point in the financial/liability approach.

4. **Imputed assets for owning of non-financial assets**
   Final owners (households and government) legal owning of non-financial assets have been transformed into financial assets (a corresponding liability is inserted in the corporate sector).

Non-financial assets – residually calculated
Total non-financial assets at market value. In theory all kinds of non-financial capital is included, irrespective of SNA asset boundaries.

3.3 Corporations - different views, some aspects on Net Worth

Corporations clearly comprise the dominating part of the grand total of stocks in the society. In this study however the character of the corporate sector is partly indirect and residual A key issue is that corporations' net worth is eliminated.

SNA defines a corporation as *a legal entity, created for the purpose of producing goods or services for the market, that may be a source of profit or other financial gain to its owner(s); it is collectively owned by shareholders who have the authority to appoint directors responsible for its general management.." (para* 4.39*).*

A somewhat different view (based on an article in the Swedish journal for economics[4]) is to describe e*nterprises and business activity from a contractual perspective where The purpose of owning of business is to generate a surplus leading to positive return on invested capital, financially and human, through the acquirement of resources which are used to create a value added that can be sold at a price that exceeds costs of production and selling expenses. The acquirements and disposals are regulated in a number of different agreements between the enterprises and e.g. its employees, suppliers and customers.*

According to basic economic theory there is a fundamental difference between compensation to the owners and the compensation to other contracting parties. The owners receive what remains after allocation of payments to all other contracting parties. Consequently, it can be said that the owners possess a residual contract.

So, while the SNA definition focuses on the activity of the company or its productive assets, the latter definition sees a company from the liability side, more as a financial security. An implication of the latter definition is that there is no independent "net worth", the whole "surplus" is allocated to the contractual parties and lastly to the company owners. In the SNA definition Net worth is that part of corporations' own funds that is not allocated to the owners in the form of shares and other equity capital items. The corporate sector thus has an own "own capital" in the SNA definition. Net worth can show both positive and negative values depending on a lot of reasons.

Excerpt fromSNA 2008: 13.89
A non-zero value of own funds comes about through a number of factors. One reason is the existence of "assets" that are not recognized as such in the SNA such as goodwill land marketing assets. Another is that the view in the SNA that the value of some financial assets, such as bonds and non-performing loans, may not coincide with a fair value approach. Some or all of these items may be available from the balance sheet of the corporation and it may be useful to compare the sum of these with the amount derived as the difference between net worth and the value of owner's equity. (For unlisted shares, indeed, this may be one way to value these shares.) Further, the market value of shares reflects market sentiment about future income streams which may fluctuate with much more volatility than the underlying value of the corporation.

The existence of the item Net worth in the SNA corporate sector is a bit complicated. Instinctively one would argue that in an ideal world with perfect market valuation and with no other deficiencies in the statistics there should be no net worth recorded in the corporate sector. On the other hand, how to regard capital that is restricted or not available for shareholders because of legal commitments? This should be relevant in particular for the financial corporations sector.

3.4 Compilation of non-financial assets – comparison between the perpetual inventory method, PIM and the financial approach

First, have a look at the table below. In comparison with table 2 I have added non-financial assets based on official statistics so the table has now the same appearance as any ordinary SNA balance

[4] Bjurgren, Du Rietz, Johansson, (2007). *["The Rules for Closely* Held Firms (the so-called 3:12-rules): An Economic Analysis"]. *Ekonomisk Debatt,* 35(7):

sheet. The corporate sector, CS, does not include notional units above. The net worth of other sectors are the same as in table 2.

Table 3 Balance sheets. Traditional SNA approach. Sweden year end 2013.

Trillion SEK.

	CS	GS	HS	ROW	TOTAL
Non-financial assets	8,1	3,1	4,4		15,6
Fin. assets other than shares	18,5	1,7	5,3	7,3	32,8
Listed shares	5,7	0,7	1,5	2,0	9,9
Unlisted shares	7,2	0,6	2,7	2,6	13,2
Totall financial assets	31,5	3,0	9,4	11,9	55,8
Total assets	39,5	6,1	13,9	11,9	71,5
Liabilities other than shares	21,9	2,2	3,3	5,4	32,8
Listed shares	6,8	0,0	0,0	3,0	9,9
Unlisted shares	9,6	0,0	0,0	3,6	13,2
Total liabilities	38,3	2,2	3,3	12,0	55,8
Net worth	1,2	3,9	10,6	-0,1	15,6
Total liabilities plus net worth	39,5	6,1	13,9	11,9	71,5

National wealth = total net worth 15,6 or non-finmancial assets minus ROW net position

What is noticeable is a relatively large difference between the two estimates (table 2 and 3) of non-financial assets and subsequently also of national wealth. The non-financial assets officially compiled are at a significantly higher level than those compiled according to the approach described above. The official figure on non-financial assets is partly based on the so called perpetual inventory method, PIM. This method implies that past flows of capital formation less depreciation plus price changes are accumulated leading up to an estimated market value of a non-financial assets, predominantly occurring in the corporate sector.

As stated above the difference should be the opposite, representing the total value of non-financial immaterial assets not included in the SNA asset boundary. However that's not the case. For each year examined negative values are recorded. For this year – 2013- the difference amounts to 8 percent and for the last ten years 15 percent on average. This indicates there are statistical inconsistencies. This problem has been observed by Piketty and Zucman (2013) Under the heading A*.4.3 Why is Tobin's Q generally less than 1?* they state that *"The main reason why corporate tangible assets may be over-estimated in the balance sheets is that the data are based on the perpetual inventory method which, as acknowledged by statisticians, suffers from a number of deficiencies*"

They claim that "*there are three potentially serious issues. First, it is often difficult to properly discard the assets of firms going out of business, and for that reason too much capital may tend to be recorded. Second, it is notoriously difficult to track the price evolution of a number of capital goods. When statisticians fail to properly account for quality improvement, inflation is over-stated and capital stocks at current prices are also over-stated (old computers are included in the capital stock at too high a price). The bias can be large, as Gordon (1990) argued. Lastly, accounting for depreciation is fraught with difficulties, and depreciation might be underestimated in national accounts (Wright, 2004)"* .

However they provide also opposite arguments. *"The main competing explanation as to why Tobin's Q seems to be less than 1 most of the time in macro data is that the equity values recorded in the balance sheets may be in some sense too low… First, many equities are not listed. Putting a price on unquoted shares is a highly complicated and uncertain business, and statisticians often have to rely on ad-hoc techniques A more fundamental reason as to why equity values may tend to be less than the net assets of corporations is that … equity market prices reflect marginal transactions. But investors who wish to take control of a corporation typically have to pay a large premium to obtain majority ownership. This mechanism might explain why Tobin's Q tends to be structurally below 1".*

3.5 Data sources. Time series

The SNA national accounts, in particular the financial balance-sheets accounts, are the cornerstone of the calculations Data are relatively consistent over the period 1980 – 2013. There is a conceptual break in the series around 1995 due to the implementation of the European System of Accounts (ESA 1995) Yet, since the model is mainly built-up from stocks of assets, lower accuracy requirements may be accepted.

Statistics on PIM calculated stocks of fixed assets and national wealth (Statistics Sweden 1995) are used for the period 1980 – 1994 and new data as from 1995 until 2011. Starting from end this year, I have then projected stocks of non-financial assets for 2012 and 2013 by adding yearly national accounts data on capital formation less consumption of capital. Holding gains have been estimated by using statistics on real estate prices.

Data are collected in Excel- containing a mix of official statistics and own calculations. It should be pointed out then that these data to some extent rely on rough estimates. A selection of time series data is provided in Appendix.

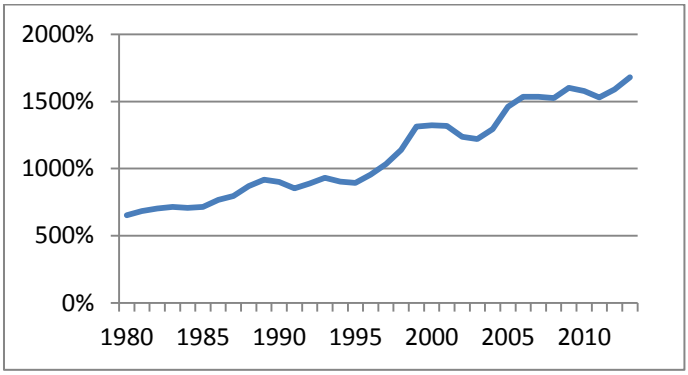
3.6. Analysis and comments

Up till now an alternative balance sheets approach has been introduced in this paper. First there was a review of prevalent theory as articulated in the SNA, second the introduction of the financial/liability approach and latest numerical results for Sweden 1980 – 2013 displayed in the overall matrix (tab 2) and a selection of time series data (see Appendix). In this section I want to point out some selected fields of analytical interest. The following are chosen: the size of financial and real economy expressed in balance sheet terms, some selected institutional sector studies and issues relating to holding gains and asset prices.

The main purpose of this study is to present alternative balance sheets. Characteristics are simplicity and a very high degree of macro. But it should be understood that what is labeled the total financial economy is a strongly over-sized aggregate. Data are unconsolidated, in particular significant for the financial corporations sector.

3.6.1 Size of the economy in balance sheet terms

Figure 2. Total financial assets including imputed assets for households and government owning of non-financial assets. Year end data in percent of GDP. 1980 – 2013..

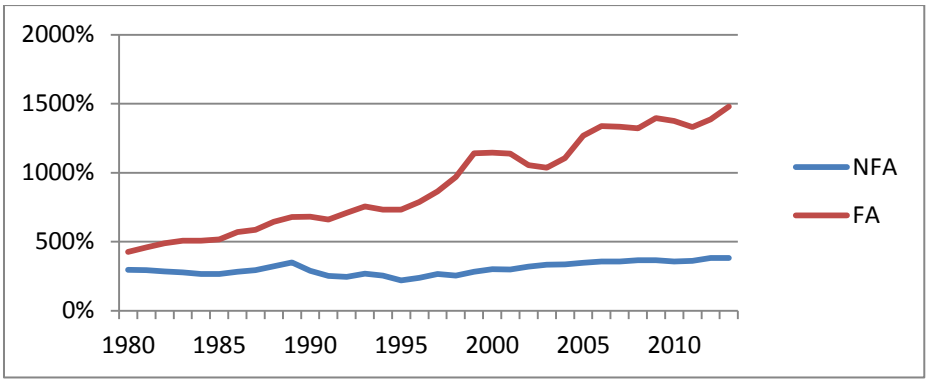


Source: Statistics Sweden and own calculations

The total size of financial assets in the economy is high. and has almost tripled since 1980. After the peak 2009 the size of the financial economy slowed down, but then up again similar to what happened at the earlier financial crises in Sweden (bank and IT-crises 1990 and 2000 respectively).

The figure below gives another illustration of the formidable expansion of the financial economy the last 30 years.

Figure 3. Total financial and non-financial assets at market value Year end data in percent of GDP. 1980 – 2013



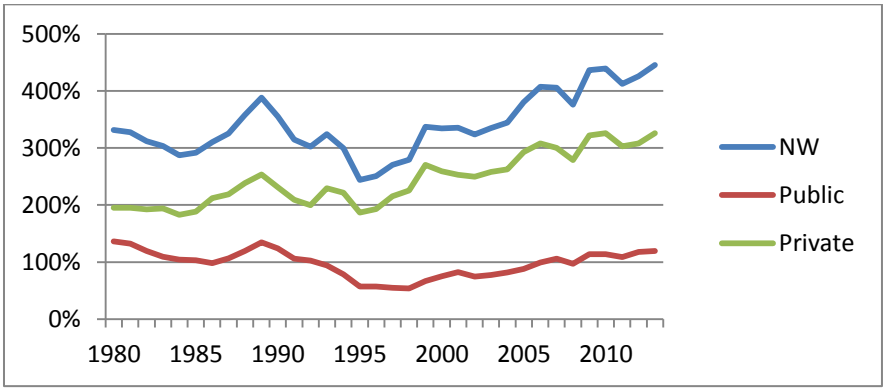
Source: Statistics Sweden and own calculations

3.6.2 Capital/ income ratio

The method of compiling national wealth and non-financial assets from the liability side of the economy is identical to that carried out by Piketty and Zucman (2013). Hence it makes it possible to calculate the PZ concept *Capital/ Income ratio*. In the PZ terminology capital is equivalent to national wealth at market value (row 61 in Appendix). Income is the Net National Income, i.e. the GDP less depreciation plus net income from abroad. PZ define "Public" as the SNA General Government and "Private" as Households plus NPISH. A selection of big countries is examined. The capita/income ratio is steadily 400 to 700 per cent in 2010 (Puketty 2014). The Swedish figures thus seem to be in the lower wealth segment – close to Germany, but considerably less wealthy than France and Britain.

What is more remarkable is the composition of wealth. In the examined countries public wealth is close to zero while it in Sweden amounts to about 100 percent of NNI over the period. In a recent long-term study (1810 – 2010) by Waldenström (2015) this pattern is confirmed.

Figure 4. Capital/ income ratios. National, private and public wealth in percent of Net National Income. 1980 – 2013.



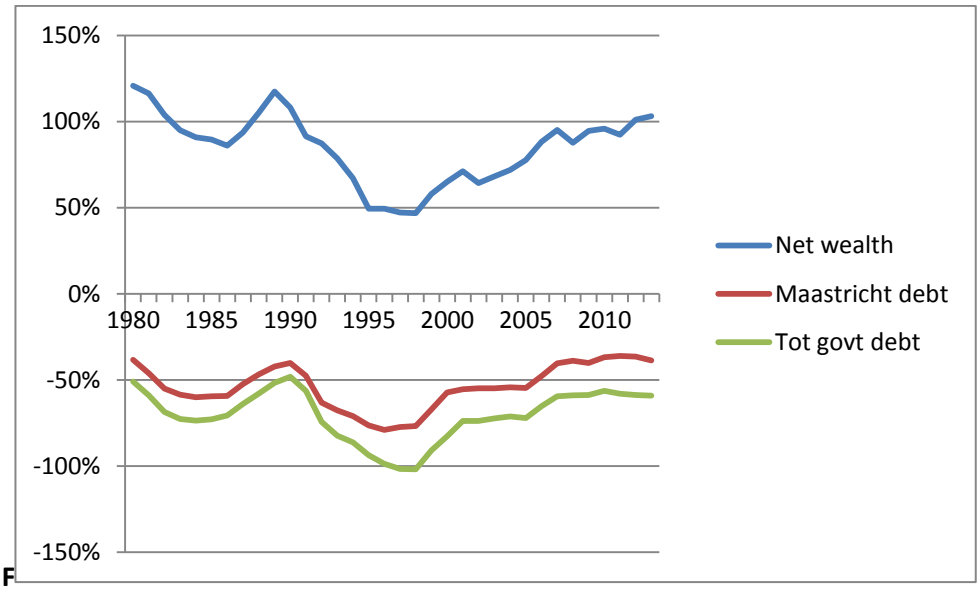
Source: Statistics Sweden and own calculations.

3.6.3 Government wealth

It appears from above that the Swedish wealth structure departs from that in other countries as concerns the magnitude of government wealth. Figure 5 below illustrates government net financial assets position (financial assets less all liabilities) and also the development of government debt. Typically in debate on public finance, attention is paid to net lending and the Maastricht debt[5]. But in a broader balance sheets perspective it is worth noticing two things. First, that Sweden contrary to most other countries has improved the government financial position during the latest/current global financial crisis. Net lending has in general been balanced and the government debt has fallen as percentage of GDP Second, there is the big difference between the net assets aggregate and the outstanding government debt. Figure 5 shows that although Maastricht debt peaked at nearly 80 percent in mid-1990-ties, the net wealth was still at a satisfactory level. Further it appears from figure 5 that debt not included in the Maastricht concept represents a considerable share of government total debt

[5] General government consolidated gross debt at nominal value. Excludes pension provisions, trade credit, financial derivatives and other accounts payable. Approximate calculations 1980 - 1994

Figure 5. General government net wealth, debt and "Maastricht debt" .Percent of GDP. 1980 - 2013



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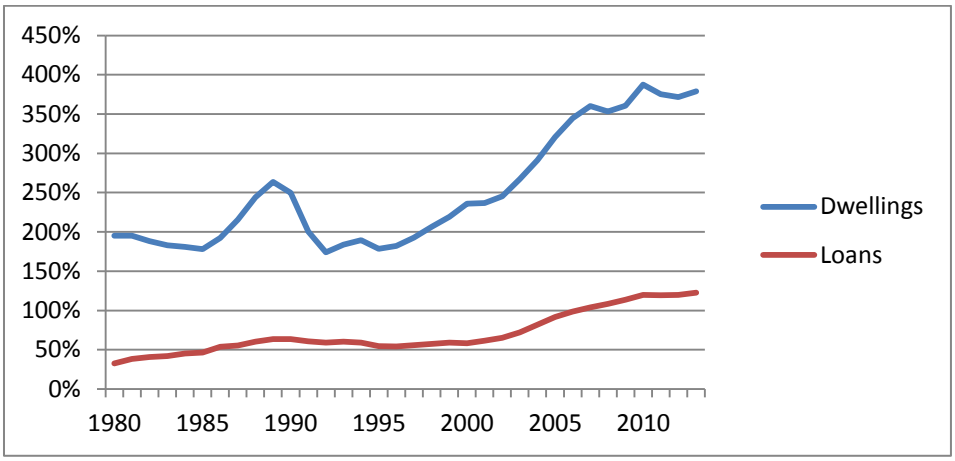
Source: Statistics Sweden and own calculations

3.6.4 Households' dwellings and loans

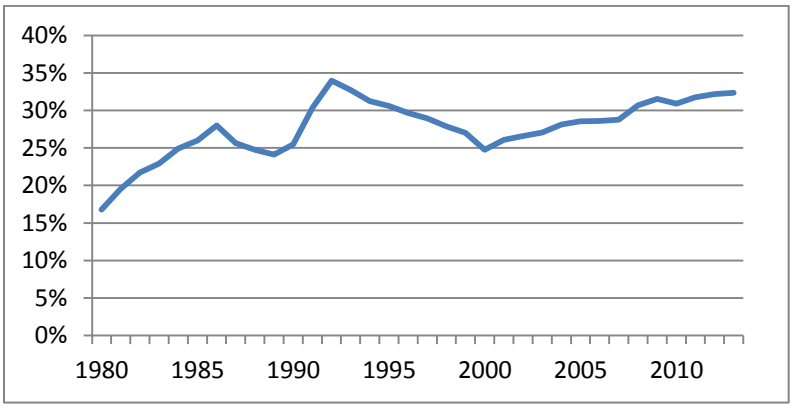
Another area of importance in view of balance sheets is housing. Figure 6 shows that the outstanding stock of housing loans grew steadily over the period. The estimated value of households' dwellings (houses and owned flats) is more up-and-down. At the 1990- crisis, there was a dramatic macro-economic change together with dramatic changes in taxation rules. The switch from high to low inflation, from high to low (or no) economic growth, the big increase in unemployment and much less favorable conditions for borrowers led to sharply falling house prices. At the same time housing loans remained at the early high level so the housing debt ratio rose quickly Thereafter the ratio fell back to a level at around 25 per cent, and then again a continuous rise upwards. The debt ratio at the end of 2013 was 32 per cent..

Figure 6 Households' dwellings and housing loans. Per cent of GDP 1980 - 2013



Source: Statistics Sweden and own calculations

Figure 7. Household housing debt ratio (loans/dwellings) 1980 - 2013



Source: Statistics Sweden and own calculations

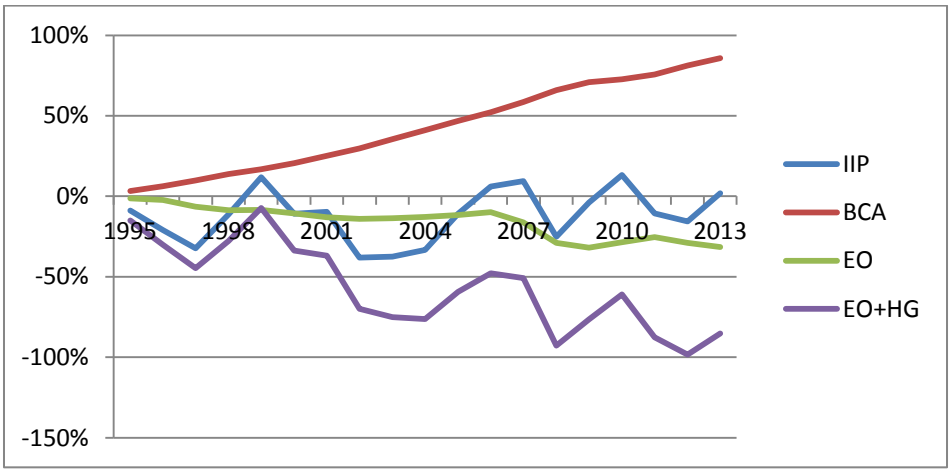
3.6.5 The balance of current account and the international investment position. IIP

In the mid-1990-ties began a period with significant current account surpluses – on average as high as six per cent of GDP since 1995 until now. This was due to the new fiscal and monetary policy regime and the subsequent strong development of exports and GDP-growth.

By definition a surplus in the current accounts (foreign trade and transfer income) automatically contributes to the net foreign assets of a nation (the international investment position, IIP). So reasonably the IIP should evolve at a satisfactory pace during the last 15 years. However that is not at all the case. The 1995 IIP amounted to minus nine per cent of GDP. At the end of 2013 the corresponding figure was just slightly better (plus two percent).

So why hasn't the IIP improved to any appreciable extent? And why are the annual up and down changes so big? The answer spells *holding gains* (and unfortunately statistical discrepancies).

Figure 8. Accumulated current account balances, errors and omissions and holding gains plus IIP at market value. Per cent of GDP 1995 – 2013.



Source: Statistics Sweden and own calculations

The figure 8 above is an attempt to illustrate these problems and should be read as follows: At the beginning of the period (1995) the IIP timely shows a value fairly close to zero. Then the accumulated

yearly current account balances indicate what would have been the value of IIP at any of the years if no holding gains/losses nor statistical discrepancies did exist.

The IIP at market value has however more or less been standing still and has not reached that 80 percent of GDP it should have if the development of the IIP had matched the accumulated external transactions. The difference to the officially recorded IIP is partially explained - at about 30 per cent of GDP - by statistical discrepancies[6], but the rest, about 50 per cent of GDP is mainly holding gains/losses. This amount is a residual and should be regarded more as an indication than as a sound estimate. A study by Blomberg and Falk (2006) at the Swedish Riksbank shows that the surprisingly big amount of aggregated holding losses is the effect of two factors. First that the very large balance sheets.. They found that value changes are the chief cause of the fluctuations in the IIP. At that time (2005) the balance sheet total of the external assets + liabilities was about five times GDP. Eight years later (2013) it appears to be nearly seven times GDP. Sweden has a floating currency meaning that the krona can fluctuate considerably against other currencies. Since the currency exposure differs between assets and liabilities the effect of currency fluctuations can thus have substantial impact. Second factor is the effect of stock exchange fluctuations About 35 per cent of the Stockholm Stock Exchange is owned by foreigners. In the macro statistics this item is classified as a liability in the accounts. So at times of stock exchange increases (relatively to stock exchanges abroad), the IIP deteriorates.

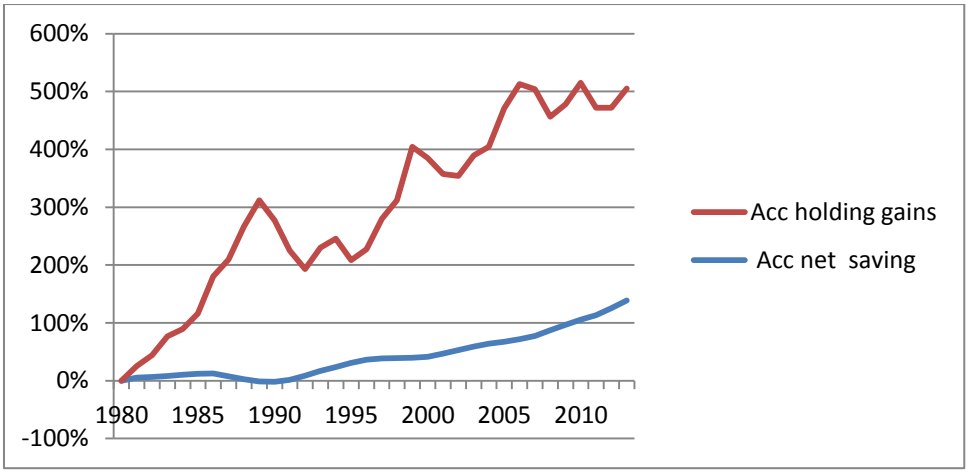
It might seem a bit peculiar that Sweden, a big net exporter, has improved it's external position only at a very modest degree. Even if the whole effect of accumulated errors and omissions is allocated to the financial account and thus the IIP, there is still a considerable amount of estimated holding losses. It must be mentioned however that the IIP is not a wealth measure. Rather it should be regarded as an adjustment in the calculation of national wealth. Foreign owners share of non-financial assets is withdrawn accordingly.

3.6.6 Holding gains dominating factor behind household wealth growth

Holding gains originating from running asset prices (dwellings and shares) are also important factors behind households' wealth growth. Of the accrued wealth growth between 1980 and 2013 twenty seven percent was due to transactions (savings) while other flows (mainly holding gains) amounted to 73 per cent. A similar pattern is observed in other countries, for example in the United States (Cagetti, and others Federal Reserve Board 2012)

[6] Net lending calculated from real and financial sides (SNA) or errors and omissions (BOP)

Figure 9 Households' accumulated saving and holding gains. Percentage of net disposable income. 1980 - 2013



Source: Statistics Sweden and own calculations

4 Summary and conclusions

Background

The purpose of this study has been to provide simplified balance sheet accounts based on SNA concepts. Behind is the increasing significance of stock data, holding gains and asset prices in recent years; a period symbolised by financial crises and economic turbulence.

A, financial/liability approach

An alternative to the traditional SNA balance sheets accounts is introduced. The model, named "financial/liability approach", is founded on established SNA concepts and theory. What is central here is that assets and liabilities are consistently market valued (as far as possible). I realize there are well-founded objections to the general use of market values, which do not always represent the "true" values of assets. But the intention is not primarily to show a true picture; rather it is to illustrate mechanical effects (from a statistical point of view) of different kinds of flows (transactions, holding gains). on assets and liabilities For instance what is the real meaning of rapid changes in asset prices and of financial markets growth. How are such events actually mirrored in the stock of non-financial assets and in the national wealth? Or if preferred – how are such events actually mirrored in the present value of the owner's expected future economic benefit of the capital stock?

Notional units, non-financial assets at market value

A deviation from the SNA is the introduction of *notional units* The procedure of moving final owners' ((households and government) non-financial capital to the corporate sector, CSE, through the creation of notional units is not necessary for the final outcome of the financial/liability approach. But it simplifies the compilation of total non-financial assets and national wealth at market value. Further a philosophical aspect could be added. Since final owners' assets are now entirely financial it could be argued that their ownership is conditional as performed on contractual bases and expressed in specific ownership rights only.

Comparing the results with PI estimated real capital indicates there is a substantial under coverage in the financial/liability approach. This is further strengthened, after the addition of R&D wealth in SNA 2008. The residual, reflecting immaterial assets not included in SNA 2008 is generally negative opposite to what should be expected. On the other hand it could be that the PI- method strongly overestimates real capital. A view held by Piketty and Zucman (2013).

Uses

Coming to the uses of balance sheets the following areas can be mentioned in particular:

- To elaborate structural developments of wealth and stocks. In that context holding gains and losses become natural, integrated parts.
- Especially interesting with the financial/liability approach is the possibility to get quick estimates total non-financial capital and national wealth at market values.
- To compile different kinds of ratios involving both non-financial and financial assets and liabilities.

Some numerical results

Results from a selection of issues show that:

- The expansion of the financial economy has been very strong both in relation to GDP and to non-financial assets

Table 4 *Total financial assets 1980 and 2013*

	1980	2013
Financial assets/ GDP	427 %	1478 %
Finacial assets /total assets	58 %	79 %

- Holding gains and losses play an increasing role in wealth accumulation
- There is a considerable difference between non-financial assets PIM calculated and measured from the financial/liavbility side of the economy.
- Piketty, Zucman defined capital/income ratios in Sweden are higher for public wealth, but lower for private and national wealth than in bigger countries.
- Government finances are not always what they appear to be.
- The housing debt ratio (loans/real estate) is not remarkably high on a macro level.

Easy to compile

My experience from the work with this study is that the compilations are surprisingly straight-forward. Data can be obtained rather easily if accuracy requirements are not too high. It should be emphasized also the high timeliness quality of the macro financial balance sheets. Data are available within three to four months after the reference date. Data sources are easily available on Statistics Sweden website, so the process of calculating the basic tables is not especially time-consuming.

Weaknesses

Weaknesses are above all the estimates of unlisted shares. The ratio between market and book values for companies (Tobins Q). is thus fairly essential for the final outcome. Figures are very sensible for which ratio is chosen.

Return on capital

A desirable use of balance sheets is when they can be applied on return on capital. Three main capital stocks categories are identified in the model – non-financial assets, financial assets other than shares and equity capital. The return on capital can be described in a broader sense as economic benefits derived from their owners by holding them or using them over a period of time.

According to ESA 95, para 7.11: " *The economic benefits consist of primary incomes (operating surplus by using, property income by letting others use) derived from the use of the asset and the value, including possible holding gains/losses, that could be realized by disposing of the asset or terminating it*."

This broad definition of return matches very well the financial balance sheets approach. So what we could do is to study the three different capital categories and the three different return categories – in all nine cells per year. The annual outcomes of such mechanical computations (return/average stock) however provide a very shaky picture for specific years. I have chosen therefore within the scope of this study not to go deeper into this subject.

REFERENCES

Bergman 2010 *Balance Sheets. A financial approach 31st IARIW General Conference St Gallen Switzerland August 22-28 2010*

Bergman 2012 *Macro Financial Balance Sheets. Alternative Approach. 1980 – 2011. Sweden 32nd IARIW General Conference Boston Massachusetts USA*

Bjurgren, Du Rietz, Johansson, (2007). *["The Rules for Closely* Held Firms (the so-called 3:12-rules): An Economic Analysis"]. *Ekonomisk Debatt,* 35(7):

Blomberg, Falk Sveriges Riksbank Economic Review 2006 *How do large current account surpluses co-exist with a weak international investment position?*

Cagetti, and others Federal Reserve Board *The Integrated Macroeconomic Accounts of the United States Paper at the NBEAR Conference in income and wealth Cambridge, Massachusetts USA 2012*

Hicks *Value and Capital (Oxford Clarendon Press 2nd edition 1946)*

Hill *The concept of income in the SNA Paper for the IARIW conference in Lahnstein 1989*

Piketty, Zucman *Capital is back: wealth income ratios in rich countries 1700 – 2010 Data Appendix 2013*

Pikettty *Capital in the twenty – first century. 2014*

United Nations *System of National Accounts 2008*

United Nations Economic commission for Europe Canberra Group *Handbook on Household Income statistics Second Edition 2011*

Statistics Sweden 2010 *Assets, liabilities and holding gains – role of balance-sheets underestimated in statistics.*

Statistics Sweden data bases available on web site *National accounts, Financial Accounts, Balance of Payments, other financial market statistics.*

Statistics Sweden N 10 SM 9501 *Stoks of fixed assets and national wealth 1980 – 1995*

Waldenström Uppsala University *Wealth-income ratios in a small, late-industrializing, welfare-state economy: Sweden, 1810–2010* February 20, 2015*

APPENDIX

Time series on selected items. SEK billions

		1980	1990	2000	2010	2013
1	**Corporate sector extended**					
2	Financial assets other than shares	1175	5077	8984	16192	18516
3	Listed shares	28	365	2381	4483	5717
4	Unlisted shares	95	417	3816	6387	7250
5	Total financial assets	1298	5859	15182	27062	31483
6	ow held by financial corp	858	3899	7980	15820	18653
7	Total non-financial assets	1679	4203	6794	12568	14433
8	real assets PI-method	2271	5957	8523	14801	15251
9	residual	-592	-1754	-1729	-2234	-1212
10	Total assets	2976	10062	21976	39630	45916
13	Liabilities other than shares	1396	5928	10166	19477	21860
14	ow held by financial corp	713	3116	5000	11619	13085
15	Listed shares	59	669	3941	5666	6842
16	Unlisted shares	237	240	3846	7366	9624
17	Imputed owning real assets	1285	3225	4023	7122	7590
18	Total liabilities	2976	10062	21976	39630	45916
19	**Government sector**					
20	Financial assets other than shares	323	697	1037	1433	1657
21	Listed shares	2	49	350	651	671
22	Unlisted shares	46	93	277	509	649
23	Imputed owning real assets	604	1436	1681	2763	3145
24	Total assets	975	2276	3346	5357	6123
25	Total liabilities	289	702	1874	1983	2229
26	ow Maastricht debt	218	584	1296	1293	1457
27	**Household sector**					
28	Financial assets other than shares	427	1238	2258	4594	5312
29	ow occupational pensions	52	233	844	1991	2598
30	Listed shares	28	213	950	1371	1452
31	ow mutual funds shares	1	103	451	664	749
32	Unlisted shares and other equity	135	560	681	2213	2677
33	ow tenant ownership rights	32	192	316	1360	1646
34	Imputed owning real assets	680	1789	2341	4359	4444

35	ow real estate	573	1572	2191	5168	5581
36	Total assets	1270	3800	6231	12536	13885
37	ow dwellings	605	1764	2507	6528	7227
38	Total liabilities	288	861	1154	2879	3274
39	ow housing loans	102	449	620	2017	2337
40	**External position to the Rest of the world**					
41	Financial assets other than shares	100	454	2119	4681	5391
42	Listed shares	0	0	1002	2426	3009
43	Unlisted shares	58	1061	1834	3897	3600
44	Total financial assets	158	1515	4955	11003	11999
45	Liabilities other than shares	147	933	3034	6801	7269
46	Listed shares	2	42	1262	1586	2011
47	Unlisted shares	19	230	906	2154	2648
48	Total liabilities	168	1205	5201	10540	11927
49	**Total financial economy**					
50	Financial assets other than shares	2072	7945	15313	29020	32754
51	Listed shares	59	669	4944	8091	9851
52	Unlisted shares	295	1300	5680	11263	13223
53	Total financial assets	2427	9915	25937	48374	55828
54	Imputed owning real assets	1285	3225	4023	7122	7590
55	Total including imputed	3711	13140	29960	55495	63418
56	**Total national economy**					
57	Non–financial assets	1679	4203	6794	12568	14433
58	Non-financial assets PI-method	2271	5957	8523	14801	15251
59	residual	-592	-1754	-1729	-2234	-1212
60	Total net assets to the ROW	-10	310	-246	463	72
61	National Wealth	1669	4513	6548	13031	14505
62	"Public" wealth	686	1574	1471	3373	3894
63	"Private" wealth	982	2939	5077	9657	10612
64	Gross Domestic Product	569	1457	2265	3520	3776
65	Net National Income	503	1271	1959	2966	3257

Source: Statistics Sweden and own calculations