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Balance Sheets. A financial approach

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Balance Sheets. A financial approach

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1. Introduction

The financial crisis has strongly influenced sector balance-sheets. Total assets and liabilities have grown substantially especially in the government sector, the monetary sector and for households. The strong expansion of stocks can be explained principally by three kinds of economic events.

First, there has been a contribution to stock growth by so called non-financial transactions, e.g. effects of fiscal policy, savings behaviour, real estate investments, deteriorated profitability in the corporate sector and international trade.

Second, so called financial transactions, have contributed. Financial transactions originate often from monetary policy. Financial support to the banking sector and recently also to indebted nations has had great impact on government and banks balance-sheets but in most cases net lending/borrowing has not been affected initially.

Finally, so called revaluations and other flows, are important factors. Changes in asset prices (mainly the stock exchange and house prices) have generated large holding gains and losses depending on the magnitude of the stocks the asset prices are applied on.

Balance-sheets are in particular important as regards description of banks and other financial institutions. Main part of bank's income generates from net interest income that is closely related to the levels of outstanding loans, possession of securities and outstanding deposits.

As will be seen from the chart below there has been a huge rise in banks balance-sheets total in Sweden during the years prior to the financial crisis 2008/2009, comparable to the development in other countries. However, in Sweden a similar pattern can be observed at the earlier financial crisis in Sweden (1990-) – a quick rise some years before and then a decrease apparently back to the trend growth curve.

The chart below shows balance-sheet totals of banks operating in Sweden according to the System of National Accounts, SNA, definitions. Between 2003 and 2008 balance-sheets grew from about 200 percent of GDP to more than 300 percent. The strong rise during the last five years is mainly due to globalisation, securitization of assets and increased interbank activities, but to a lesser degree depending on increased credit demand from the public.[1]

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

Monetary Financial Institutions (MFI) operating in Sweden.

"Banks" liability side. 1980 - 2009.
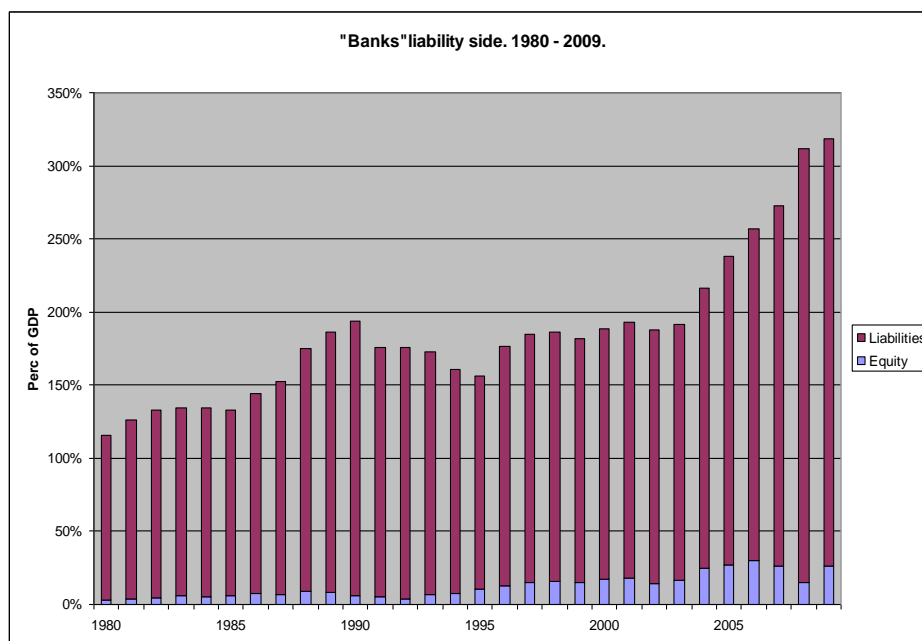
Banks and other financial institutions may be the most obvious application of stock analysis in macroeconomic theory and statistics. In recent years there has however been an increasing interest in different debt variables (government, housing. households, national).

Macroeconomic theory and modeling are nevertheless based almost entirely on economic transactions. In macroeconomic analysis, balance sheets are often neglected. Characteristics of financial balance-sheets are that each item has counterparts in other units, sectors and countries. In cases of exceptional changes in balance-sheet items these will thus have an immediate corresponding effect for the counterpart. Further it should be noted that balance-sheets are much bigger in money terms than transactions and that 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 developed so surprisingly fast and strong. The exceptional changes in the sector balance-sheets in recent years, particularly in the financial and non-financial corporate sectors, but also in the households sector, the government sector and the International Investment Position (IIP) have not been paid enough attention among analysts.

So, when there is currently great focus on debts and some assets in relation to the financial and foreign debt crises respectively, an overall analysis of institutional sectors balance-sheets and wealth seems still to be absent.

How come? Some of the major reasons could be:

1. Problems with valuation of assets and liabilities e.g. the application of market values, and the valuation of non-financial assets,
2. The interpretation and compilation of holding gains.

3. The existence and interpretation of Corporation Net Worth
4. Timeliness of the statistics
5. Complicated compilation of non-financial assets
6. Absence of theoretical framework for balance-sheets.

Continuously this paper treats two major parts. Firstly a review of basic theory and statistics, secondly an attempt to regroup assets and an liabilities in an alternative way.

PART I

2. Theory

2.1 Flows and stocks

In economic analysis 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. Flows in the form of so called transactions are dominating in national accounts statistics, macroeconomic analysis and -modeling. Examples are GDP and it's components (consumption, capital formation, export/import, production, wages, operating surplus). Other examples 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 changes due to asset price changes are defined as flows in the System.

Stocks consist of different kinds of non-financial capital (tangible and intangible assets) and financial assets and liabilities. Stocks are building stones in a balance-sheet, which in it's most simple form can be compiled as follows:

Assets	Liabilities and equity
Tangible assets	Liabilities
Intangibles	Equity
Financial assets	
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)*

meaning that the value of a stock at a certain moment is always the accumulated value of all historical flows.

Simultaneously the market value of the same stock can be expressed as the present value of the owner's expected future economic benefit of the capital stock. So, stocks are both backward- and forward-looking, giving balance-sheets a central role in economic analysis (?)

However as mentioned above that's definitively not the case. Macroeconomic theory and modeling are based almost entirely on economic transactions. In macroeconomic analysis, balance-sheets are often neglected.

2.2 Holding gains – a consequence of market valuation of stocks

Holding gains occur when the value of an asset or liability increases or decreases due to price changes. In principle, all assets and liabilities shall be evaluated according to the market. One such example is when a share portfolio increases or decreases in value. When the value rises,

one becomes wealthier without any recorded change in disposable income or savings, and when the market falls, wealth decreases correspondingly, while income and savings remain the same. Holding gains that are not realized are more or less fictive, since it is only when an asset is sold that money can be used.

Since the principle of market evaluation applies in the national accounts, the greater part of holding gains will be registered as not realized. In practice however, this principle means that balance-sheets are evaluated at the market value, with the shortest interval being quarterly. Holding gains that are realized can then occur as a change in value, calculated from the last shift in the quarter to the time the sale is made. However, we usually do not think of realized holding gains in this way. Instead, changes in value between purchases and sales usually refer to longer periods.

Accordingly, it is not possible to implement realized holding gains as income in the national accounts without breaking the symmetry between income and expenditure in the system. Realized holding gains made by the seller are of course not a corresponding loss for the buyer when the transaction is made.

So holding gains are thus not part of disposable income or savings in the System. One reason for not including them as income is that holding gains arise from assets originally created by income from production (double counting?)

In the following paragraphs some theories and basic concepts will be described, based on SNA 2008.

2.3 Economic assets, risks, ownership – extract from SNA2008

Stocks

3.18
Stocks relate to the total level of assets or liabilities in an economy at a point of time. (In balance of payments methodology, the levels or stocks are referred to as positions.) In order to discuss stocks it is necessary to define assets and liabilities and these definitions depend crucially on the concepts of benefit and ownership. Once the definitions are clear, the way in which assets and liabilities are classified within a balance-sheet are touched on as well as the way in which items enter and leave the balance sheet.

Benefits

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.

3.20
Sometimes the immediate benefit is in terms of goods and services directly, for example own account production or wages and salaries in kind. More often a benefit is in the form of the medium of exchange (money), for example as wages and salaries. Consumption is an activity that takes place in the current period only but may be financed from past benefits. Production and accumulation also involve benefits postponed to future periods. Thus, means of allowing benefits to be moved from one accounting period to another have to be recognized. These take the form of assets and liabilities where a benefit in one period is converted to a benefit in one or more future periods. Similarly goods sand services, or current benefits, may be acquired by committing future benefits in the form of financial liabilities.

Ownership

3.21
Two 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.***

3.22
Sometimes government may claim legal ownership of an entity on behalf of the community at large. No entity that does not have a legal owner, either on an individual or collective basis, is recognized in the SNA.

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. These arise because of such uncertainties as the demand for goods and services once produced, developments in the economy in general and technical innovation that affects the benefits to be earned from capital and natural resources. The consequence is that benefits from capital, natural resources and labour in the form of operation surplus and income from employment are not wholly predictable in advance, but embody a degree of risk.

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.

3.26
The economic owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled to claim the benefits associated with the use of the entity in question in the course of an economic activity by virtue of accepting the associated risks.

The definition of an asset

3.30
Leading on from the above it is possible to define an asset as follows. *An asset is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of currying forward value from one accounting period to another.*

3.31
All assets in the SNA are economic assets. Attributes such as reputation or skill, which are sometimes described in common parlance as an asset, are not recognised as such in the SNA because they are not economic in nature in the sense described under ownership.

Financial assets and liabilities

3.32
A particularly important mechanism in the economy is the device whereby one economic unit exchanges a particular set of benefits with another economic unit. Benefits are exchanged by means of payments. From this a financial claim, and hence a liability, can be defined. There are no non-financial liabilities recognized in the SNA, thus the term liability necessarily refers to a liability that is financial in nature.

3.33
A liability is established when one unit (the debtor) is obliged, under specific circumstances, to provide a payment or series of payments to another unit (the creditor). The most common circumstance in which a liability is established is a legally binding contract that specifies the terms and conditions of the payment (s) to be made and payment according to the contracts is unconditional.

3.34
In addition, a liability may be established not by contract but by long and well-recognized custom that is not easily refuted. In these cases, the creditor has a valid expectation of payment, despite the lack of a legally binding contract. Such liabilities are called constructive liabilities.

3.35
Whenever either of these types of liability exists, there is a corresponding financial claim that the creditor has against the debtor. *A financial claim is the payment of series of payments due to the creditor y the debtor under the terms of a liability.* Like the liabilities, the claims are unconditional. In addition, a financial claim may exist that entitles the creditor to demand payment from the debtor but whereas the payment by the debtor is unconditional if demanded, the demand itself is discretionary on the part of the creditor.

3.36
Financial assets consist of all financial claims, shares or other equity in corporations plus gold bullion held by monetary authorities as a reserve asset. Gold bullion held by monetary authorities as a reserve asset is treated as a financial asset even though the holders have no claim over other designated units. Shares are treated as financial assets even though the

financial claim their holders have on the corporation is not a fixed or predetermined monetary amount.

The asset boundary and the first-level classification of assets

3.37
All entities that meet the definition of an asset given above are included in the asset boundary of the SNA. Assets that are not financial assets are non-financial assets. Non-financial assets are further subdivided into those that are produced and those that are non-produced.

3.38
Because assets represent a store of future benefits, all assets can be represented by a monetary value. This value represents the market´s view of the total of the benefits embodied by the asset. Where a direct market view of this value is not available, it must be approximated by other means.

3.39
The only non-financial assets included in the asset boundary of an economy are those whose economic owners are resident in the economy. However, in the case of most natural resources and immobile fixed capital, which physically cannot leave the economy, a notional resident unit is established if the economic owner is technically a non-resident unit. In this way the assets in question do become those with resident economic owners and so are included within the asset boundary and are included on the balance sheet.

Exclusions from the asset boundary

3.46
The coverage of assets is limited to those assets used in economic activity and that are subject to ownership rights; thus for example, consumer durables and human capital, as well as natural resources that are not owned, are excluded.

3.47
Consumer durables are not regarded as assets in the SNA because the services they provide are not within the production boundary. Because the information on the stock of durables is of analytical interest, though, it is suggested that this information appear as a memorandum item in the balance sheet but not be integrated into the totals of the table.

3.48
Human capital is not treated by the SNA as an asset. It is difficult to envisage "ownership rights" in connection with people, and even if this were sidestepped, the questions o valuation is not very tractable.

3.49
There are some environmental resources excluded from the SNA asset boundary. These are usually of the same type as those within the boundary but are of no economic value.

2.4 Capital moves benefits in time

The main economic activities (production, consumption, capital formation) differ thus as regards the time-lag of economic benefit, that is allocated to the economic owner. This means also that the emergence of capital stocks differ respectively. Consumption does not generate capital since consumption is assumed to take place in "current period", i.e. is defined as consumption expenditures and not as actually use of goods and services by the consumer (an illustrating example is consumption of cars). Production and capital formation, on the other hand, imply that expected economic benefit is put forward in time in the form of capital stocks (buildings, machinery, equipment). Financial assets appear when benefits are exchanged between two institutional units by means of payments. The financial markets (involving all financial assets and liabilities) thus moves (expected) economic benefits forward – and backward – in time through savings and borrowing.

2.5 Institutional sectors – final owners, intermediate owners

In the institutional sector division it is desirable to group the players that make decisions about their own economy, i.e. the **institutional units** (corporations, authorities, households), so that the sectors will be more or less homogenous with regard to economic activity. Households are so called final owners, while corporations are 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 defined as final owners in the System.

Conclusively: owners of economic assets dispose the benefit that the capital stock is expected to generate. The value of an asset corresponds to the present value of the expected economic benefit. 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. Statistics on balance-sheets

3.1 National wealth statistics

Generally, balance-sheets containing economic assets on a macroeconomic level, are in the form of so called national wealth balance-sheets. Such balance-sheets can be compiled for institutional sectors as for the whole nation. In Sweden *Stocks of fixed assets and balance-sheets* were compiled for the year-end figures 1980 – 1994. The production of the statistics however ceased due to lack of financial resources and fairly weak interest from potential users. The compilations are planned to start again soon.

Below, results from end 1994. Billion SEK

	Corporations	Government	Households	Total
Tangible fixed produced assets	1891	857	1097	3845
Stocks	200	3	9	212
Tangible non-produced assets	401	272	576	1249
Financial assets	6454	1113	1778	9345
Total assets	8946	2245	3460	14651
Liabilities	7662	1447	831	9940
ow quoted equity	981	0	0	981
ow non-quo equity	842	0	0	842
Net worth	1284	798	2629	4711
Own funds = equity + net worth	3107	0	0	

3.2 Financial accounts statistics

Financial accounts belong to the institutional sector accounts and show how the different sectors acquire and dispose of financial assets and liabilities within the frame of a closed system. Although financial transactions and the concept net lending are the most important in the financial accounts, the system also includes balance-sheets and holding gains. Financial accounts main characteristics are:

- Market valuation of assets and liabilities (in principle)
- Liquidity, risks and redemption date are given as classification criteria
- Total financial assets equal total liabilities for all sectors incl. ROW
- Opening balance + transactions + other flows (revaluations) = closing balance.

Financial accounts – balance-sheets. Simplified matrix. End 2009. Billion SEK.

	NFC	FC	GOV	HH	ROW	TOTAL
Bank deposits	671	2817	60	1047	1541	6136
Certif, bonds	294	3688	442	170	3137	7732
Shares, equity	5422	3607	1084	2113	2494	14720
Loans	84	4948	473	12	333	5850
Other assets	2480	451	406	2412	1503	7252
Total fin.assets	8952	15512	2466	5754	9007	41690
Bank deposits		4915	40		1181	6136
Certif, bonds	654	4112	1244		1722	7732
Shares, equity	7512	2910			4297	14720
Loans	2367	212	256	2529	487	5850
Other liabilities	2943	2862	196	155	1039	7252
Total liabilities	13476	15010	1736	2684	8726	41690

3.3 Balance of payments statistics

The balance of payments statistics (BOP) include all domestic transactions (flows)and positions of assets and liabilities against the rest of the world (ROW). BOP is in principle identical to SNA as regards the main accounts – current account and capital account in BOP correspond to the National accounts ROW sector and the financial accounts in BOP and SNA cover the same numerical data. The terms and classifications within each of the main accounts differ however. When it comes to balance-sheets the so called International Investment Position (IIP) is divided on portfolio investment capital, direct investment capital and other capital while the financial accounts balance-sheets are specified on financial claims according to the SNA (see above).

International Investment Position, IIP, Sweden. End 2009. Billion SEK

Direct investment capital	2606
Portfolio investment capital	2742
Financial derivatives	391
Other investment capital	1896
Reserv assets	338
Total Swedish assets abroad	7973
Direct investment capital	2171
Portfolio investment capital	3974
Financial derivatives	335
Other investment capital	2094
Total Swedish liabilities to ROW	8574
Net assets	-601

There are two interesting things in the BOP IIP that will be important henceforth (see below). First, all assets and liabilities in the IIP are regarded as financial. This means that if you e.g. are legal owner of real estate abroad, this is recorded in the IIP as an indirect owning of an imputed corporate unit located abroad. This unit in turn is recorded as owner in the IIP (as is the case also in the SNA financial account). Second, direct investment capital corresponds to the concept "own funds" see above, i.e. share capital **plus** net worth whether at book value or at market value. Since this treatment is applied also in the SNA national- and financial accounts it appears to be an inconsistency in the SNA. Net worth of the total corporate sector include thus only domestically owned companies (?).

PART II

4. Balance-sheets – a financial approach

4.1 Background

Up to now prevalent theory and statistics within the area of macro-economic balance-sheets have been briefly described. Traditionally national wealth and sector balance-sheets statistics are provided within the framework of national and financial accounts. National and sector balance-sheets accounts give certainly the most comprehensive picture. These accounts cover both 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.

For what reason? Except for the absence of analytical framework as mentioned above it appears to a non-professional (NA expert) user that there are some conceptual shortcomings and uncertainties in the balance-sheets accounts, for instance that most of the value representing intangibles in a company is not included as assets. Only some purchased goodwill and marketing assets are included while internally generated (trademark, goodwill, organizational capital) are not. This could be confusing from a business accounting view and maybe also in studies of wealth.

Further, is the use of market values not generally accepted among users, especially the application of marginal values on the entire capital stock e.g. the housing stock. Another complication is how to interpret the concept Corporation Net Worth. Also the timeliness of the statistics is often unsatisfactory and the production of the statistics may demand large financial resources

It should be noted too that there are two different aspects of capital which could contribute to the confusion about capital stocks and balance sheets. The first aspect, which has been dealt with so far is to regard capital as *storage of wealth*. Here the assets and liabilities of institutional sectors are measured at current prices. The other aspect is to see capital as a *source of capital services*. Capital services is a concept used in particular by OECD and which corresponds roughly to 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.

If we from now then leave the second aspect of capital and concentrate on the first one – the storage of wealth aspect – it can be noted that issues about wealth and debt are closely related to financial markets, which in turn are close to business accounting, market valuation etc.

In the wake of the latest financial crisis different views have been expressed in respect of macroeconomic theory and statistics like e.g. how to theoretically integrate real and financial

economy and how to treat asset prices and holding gains. Examples are articles in the Swedish Journal of economics[2] and the Stigliz Commission (see below).

Extract from Report by the Stieglitz Commission on the Measurement of Economic Performance and Social Progress. Executive Summary.
Pages:
56)   For firms as well as for an entire country, the information about wealth is brought together in balance sheets. To construct the balance sheet of an economy, we need comprehensive accounts of its assets (physical capital – and perhaps even human, natural and social capital) and its liabilities (what is owed to other countries). To know what is happening to a country as a whole, we need to ascertain changes in total wealth – economic, social, and environmental. In some instances, it may be easier to account for changes in wealth than to estimate the level of wealth. The importance o measuring wealth, in all its main dimensions, is also a core recommendation of recent work on the measurement of sustainability by the UN-ECE, the OECD and Eurostat (2009).
57)   Although information about many aspects of economic wealth is in principle available from national accounts´ balance sheets, it is often incomplete. For some assets, price indices are incomplete or do not follow an agreed methodology. This concerns, for instance, the single most important type of asset for private households, dwellings… Furthermore, certain assets are not recognized as such in the standard accounting framework.
58)   Changes in wealth entail gross investments (in physical and human capital) minus depreciation and depletion (of physical, human, and natural capital). Wealth also changes through revaluation: in the present economic crisis, plummeting house prices negatively affect many households, and revaluations of pension funds´ assets directly influence consumption possibilities of pensioners. There is thus a direct link between stocks and flows and information on both is needed to assess peoples´ living standards.

The final part of this paper includes an alternative to the traditional national wealth and sector balance sheets accounting. This approach is however just an exercise with no other intention than illustrating economic assets and liabilities in the economy in an alternative way.

4.2 A numerical exercise

Following from above a numerical exercise can be elaborated in seven steps.

Starting point
- Information from balance-sheets according to SNA are used or if not available, financial balance-sheets according to SNA Financial accounts and some estimates of tangible assets.

- Market values (or equivalent) as far as possible. Additional calculations may be needed for unlisted equity and tangible assets, in particular for households and government tangible assets.

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[2] Makrotoeri i kris? 4/2010

Step 1
Make a distinction between final and intermediate owners. Households and government sectors are final owners. Non-financial and financial corporations are intermediate owners.

Step 2
Final owners (households and government) can only possess financial assets. They cannot directly own non-financial assets. For those sectors – apply BOP – treatment of legal owning of tangible assets i.e. that owning of tangible assets is transformed to financial assets via notional corporate units.

Step 3
Consequently the corporate sector is extended so as to include non-financial corporations, financial corporations and notional corporate units (see above).

Step 4
A matrix can be compiled, including four sectors ("corporations", households, government and the Rest of the world) and four financial claims categories interest-bearing, listed shares, unlisted equity and imputed assets/liabilities for legal owning of tangible assets. Interest-bearing assets and liabilities include also zero-interest instruments like notes, trade credit and other accounts receivable/payable.

Step 5
Apply the Own funds approach (SNA) on the extended corporate sector, i.e. corporations net worth is eliminated and allocated to its owners.

Step 6
Change perspective (to business accounting) as regards the corporate sector. Total non-financial capital in the national economy can thus be residually calculated.

Step 7
If satisfactorily calculations can be made as regards tangible assets (at market value), macro level estimates of intangibles at market value can be residually calculated.

The following table shows the result from a preliminary calculation at end 2009.

Table

Trillion SEK[3]	"CORP"	GOV	HH	ROW	TOTAL
	1	2	3	4	5
1 Fin. assets interest-bearing	15,4	1,4	3,6	6,5	27,0
2 Shares quoted	3,6	0,6	1,1	1,2	6,5
3 Equity non-quoted	1,7	0,8	5,4	1,3	9,2
4 Imputed owning NFC		2,8	4,7		7,4
5 Total assets	20,8	5,6	14,7	9,0	50,1
6 Liabilities interest-bearing	18,1	1,7	2,7	4,5	27,0
7 Shares quoted	4,6			1,9	6,5
8 Equity non-quoted	6,8			2,4	9,2
9 Imputed equity liabilities	7,4				7,4
10 Total liabilities	36,9	1,7	2,7	8,8	50,1
11 Net financial assets	-16,1	3,8	12,1	0,2	0,0
12 *= total non-financial. assets	**16,1**				

4.3 Data sources – about the figures

As mentioned above SNA financial accounts balance-sheets are the cornerstone. Ideally statistics on stocks of tangible assets by institutional sectors are on hand. However, as is the case in Sweden, up to date information on non-financial capital is not available. But, by using statistics on real estate prices and rough projections, estimates can be done. The calculations in brief:

1. Financial interest-bearing assets (and liabilities)
    Deposits, bills, bonds, loans, insurance reserves, trade credit, other accounts.

2. Shares, quoted
    All listed shares including mutual funds shares.

3. Equity, non-quoted
    Since market values are not available, an estimate is required. In the Swedish financial accounts balance-sheets book values not adjusted to macro levels are most common. However in the present exercise a rough estimate of market values has been made by using the ratios in the pan-European database for quoted shares as recommended by the Eurostat/ECB Working Group on Unquoted Shares (WGUS).

4. Tangible assets
    Starting from bench-mark end 1994, stocks of tangible assets have been projected by adding yearly data on capital formation less consumption of capital. Holding gains have been estimated by using statistics on real estate prices.

5. Imputed assets for owning of tangible assets
    Final owners – households and government – legal owning of tangible assets has been transformed into financial assets (corresponding liability in the corporate sector).

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[3] Thousand billions. 10 SEK = approx. 1 Euro.

4.4 Corporations - different definitions, some aspects on Net Worth

A key issue is that corporation's net worth is eliminated in the model. The corporate sector has a central role. According to SNA 1993 *"corporations are institutional units created for the purpose of producing goods or services for the market. They may be a source of profits for the units that own them." (SNA 1993 4.18).* This definition seems somewhat empty since it just says that companies are what companies normally do. A more relevant definition, at least in the present case can be found in an article in the Swedish journal for economics[4]. (freely translated).

Enterprises and business activity can be described from a contractual perspective where the boundaries for enterprises decisions on allocation of resources and incentives are determined by the legal framework of private property….. 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** (my mark)."*

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 special kind of financial security. Another implication of the latter definition is that there is no independent "net worth", not allocated to the company owners nor any of the contractual parties.

The items in a company's balance-sheet are valued at business accounting principles. The book values are a mixture of market values and other valuation principles, preferably tax based. An important objective of business accounting is to provide relevant information to owners and other interested parties about liquidity, solidity, profitability etc.

An analytical complication with the SNA corporate sector is the existence of the item Net worth. 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". Net worth can show both positive and negative values depending on firstly the discrepancy between market valuation of shares and other equity and the corresponding.

The alternative approach outlined above assumes that all financial assets and liabilities are at market value (corresp.).The consequence is that also the residual item Non-financial capital, NFC is market valued.

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[4] Bjuggren, Per-Olof, Du Rietz, Gunnar and Johansson, Dan (2007). "3:12-reglerna: en ekonomisk analys" ["The Rules for Closely Held Firms (the so-called 3:12-rules): An Economic Analysis"]. *Ekonomisk Debatt,* 35(7): 18-30.

It should be mentioned that non-financial capital not easily can be broken down on tangible and intangible assets(net). The reason is that changes in market valued equity normally cannot be directly related to specific assets in the balance sheet. It could as well be a mixture of effects on tangible, intangible assets, debt and liquidity structure etc.

5. Summary and conclusions

Capital stocks are expressions of "storage of wealth". Normally capital stocks are arranged in balance-sheets. These balance-sheets show assets, liabilities and wealth of the owners, i.e. different institutional sectors or the nation as a whole. Stocks/balance-sheets are the accumulated result of all historical flows (mainly non-financial and financial transaction and revaluations due to changes in asset prices). At the same time, however, a certain capital stock at market value represents the present value of future expected economic benefits for the economic owner of the capital stock.

These fundamental properties of capital stocks should reasonably give balance-sheets a central role in theory and statistics. However that is definitively not case. Macroeconomic theory and modeling are based in the main on economic transactions. In macroeconomic analysis, balance-sheets are often neglected. These circumstances may have contributed to why the financial crisis developed so surprisingly fast and strong. The exceptional changes in the sector balance sheets in recent years, particularly in the financial and non-financial corporate sectors, but also in the households sector, the government sector and the international investment position (IIP) have not been paid enough attention among analysts.

Traditionally national wealth and sector balance-sheets statistics are provided within the SNA framework of national and financial accounts. Non-financial assets are usually calculated with some kind of perpetual inventory method or corresponding. The calculations often involve different price and volume estimates. Information on intangibles is often missing or incomplete. These statistics are nevertheless very useful in many cases.. But, there are some serious limitations: corporation's net worth is a dubious concept and the timeliness is often not satisfactory.

An alternative to the traditional statistics is thus explored in this paper. A financial approach is applied. Briefly the following characteristics apply: Final owners are separated from intermediate owners, final owners legal owning of non-financial assets is transformed into financial assets, corporations net worth is eliminated and allocated to its owners. Total non-financial capital at market value (including intangibles) can be calculated as a residual item. It should be pointed out also that data to some extent rely on rough estimates and that the calculation is to be regarded principally as a numerical exercise. The matrix showing figures for end 2009 is to be found at page 17. Further, some selected time series charts are displayed below, still with the same reservations as mentioned above.

First balance-sheets of the two final owners' institutional sectors - households and government.

Balance-sheet. Households

Balance-sheet. Government
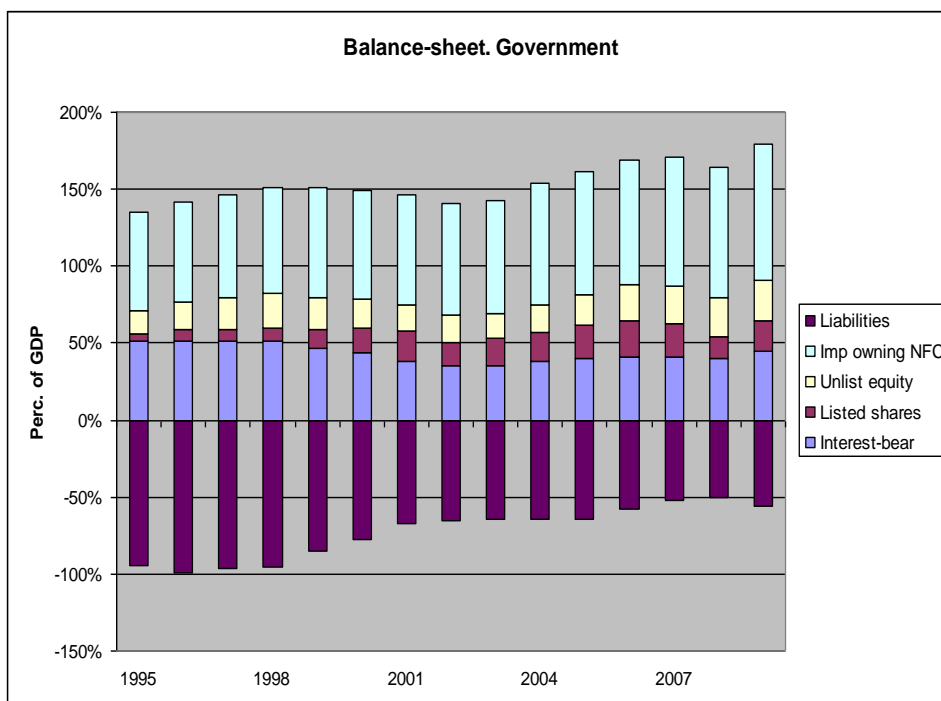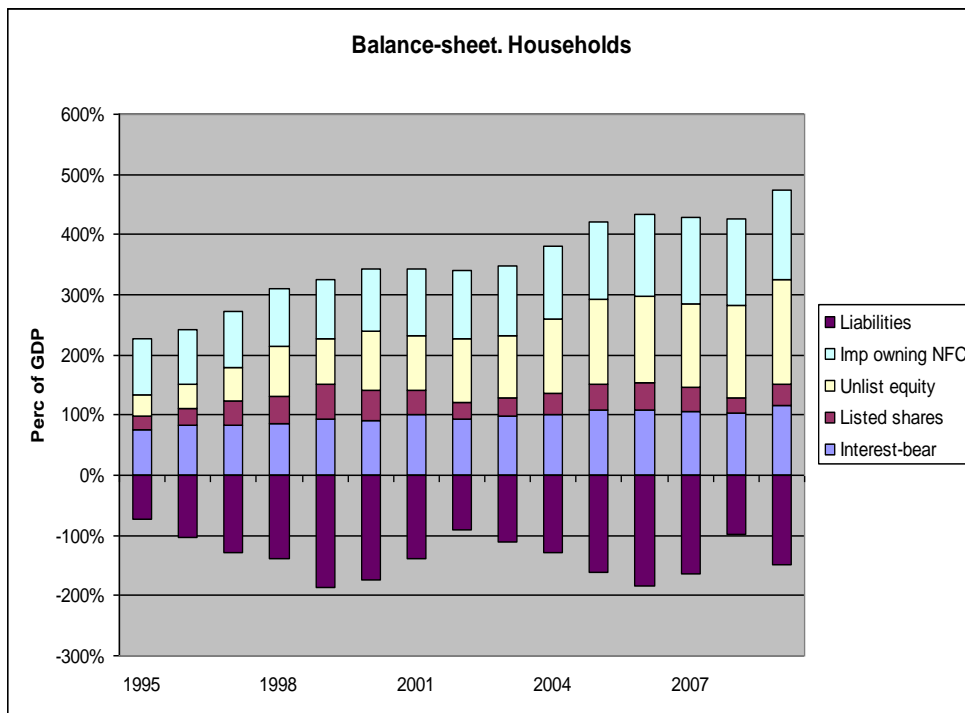
*S*econdly two charts showing total financial assets and total non-financial assets respectively.

Total financial capital

Tptal non-financial capital
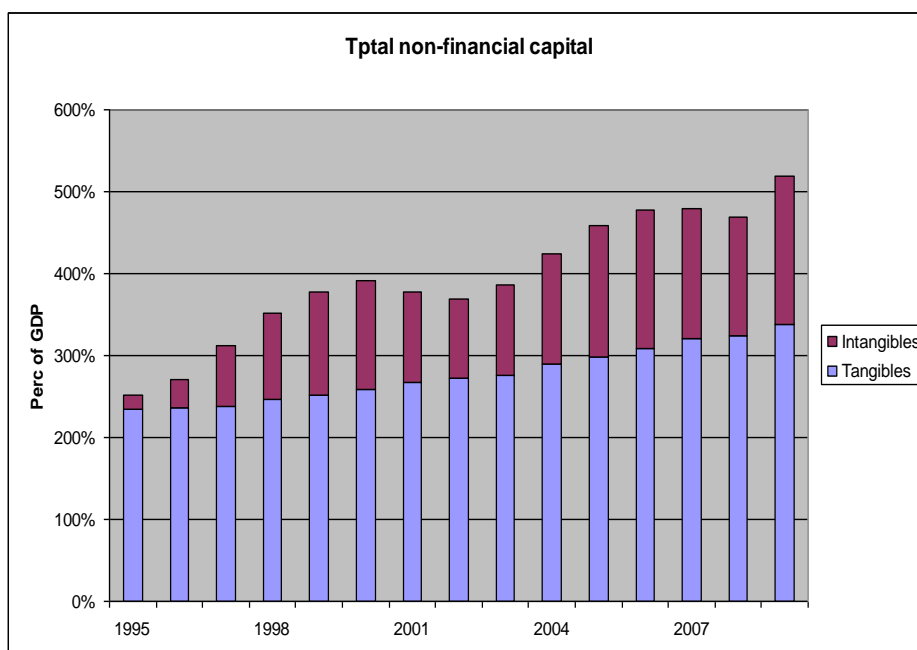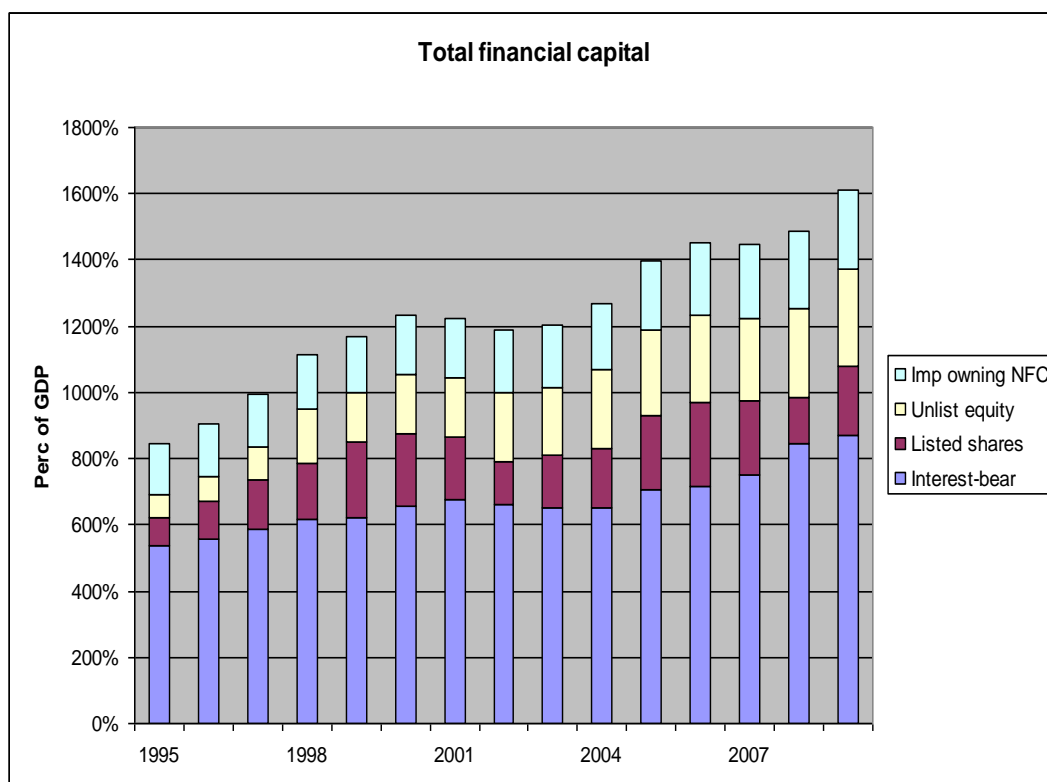
The alternative table provides some new aggregates and ratios. However it is not the intention at this early stage to evaluate the relevance of these measures. Bearing this reservation in mind the existence of three kinds of capital with regard to direct return of capital can be identified – interest bearing capital, owner's capital and national capital (the latter generating.

operating surplus). Further, for each of the capital categories holding gains can be compiled. so that a lot of return of capital ratios can be compiled.

A major weakness may be the application of consequent market valuation of assets and liabilities at current prices and that the "market value" estimates of non-market assets in some cases are rough an uncertain. Further it should be observed that the magnitude of some statistical aggregates is quite large (numerical values amount up to ten to fifteen times GDP).

However a great advantage compared with the traditional national wealth calculation is the timeliness and that the basic matrix can be rather easily compiled.

Finally some thoughts about return on capital even if this subject is not the purpose of this paper. Above, three kinds of capital stocks have been identified: interest-bearing assets, equity capital and non-financial capital. What the first two (financial assets) have in common is that total return (property income plus holding gains) should compensate for expected inflation, for expected risk an in some cases for services (FISIM). At least three kinds of return ratios can thus be compiled for each category – a) property income, b) holding gains and c) property income plus holding gains - all to be compiled as proportion to the average stock for a certain period.

As concerns the third category – the non-financial stock at market value – I am a bit unsure. Can operating surplus be regarded as (owners) direct return? And is there a corresponding holding gains return ratio on total non-financial capital? And to whom does it belong?

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