Chapter 13: Other changes in assets and liabilities accounts (revised title)

(OLD Chapter 12: The other changes in assets accounts)

A. Introduction

13.1 This chapter is concerned with the recording of changes in the values of assets and liabilities, and thus of the changes in net worth, between opening and closing balance sheets that result from flows that are not transactions, referred to as other flows. Transactions in assets and liabilities and the immediate consequences of transactions on net worth are recorded in the capital account and financial account. The change in the value of ~~produced~~non-financial assets resulting from ~~consumption of fixed capital~~depreciation and depletion as well those resulting ~~and~~ from recurrent losses from inventories are treated as transactions and so do not appear in the other changes in assets and liabilities accounts.

13.2 Although the entries relate to flows that are not transactions, they are not "residual" entries. Rather they serve to demonstrate significant changes in the value and composition of items between the opening and closing balance sheets due to other events.

13.3 The entries in the other changes in assets and liabilities accounts cover many different kinds of changes in assets, liabilities and net worth. Some of these are particular to the type of asset concerned, some may apply to all types of assets and liabilities. All changes relating to holding gains and losses are included in the revaluation account. Holding gains and losses arise from changes over time in the level ~~and structure~~ of prices, including those arising from changes in currency rates for assets and liabilities expressed in foreign currency. All other changes in the value of assets and liabilities are treated as being due to a change in volume due to quality change rather than due to changes in prices and are recorded in the other changes in the volume of assets and liabilities account. This includes changes in value that result instantaneously, for example, from a reclassification of an asset or from other one-off events.

13.4 The chapter discusses the two accounts in turn, beginning with the other changes in the volume of assets and liabilities account and proceeding to the revaluation account. Under each account, the entries for each type of asset are discussed separately.

B. The other changes in the volume of assets and liabilities account

13.5 The other changes in the volume of assets and liabilities account records the changes in assets, liabilities, and net worth between opening and closing balance sheets that are due neither to transactions between institutional units, as recorded in the capital and financial accounts, nor to holding gains and losses as recorded in the revaluation account. The format of the other changes in the volume of assets and liabilities account, shown in table ~~12~~13.1, is similar to that of the other accumulation accounts. The entries for changes in assets are on the left-hand side and the entries for changes in liabilities are on the right-hand side. Non-financial assets, both produced and non-produced, and financial assets are shown separately. The balancing item in the account, the change in net worth due to other changes in the volume of assets and liabilities, is the excess of the sum of the changes in assets over the sum of the changes in liabilities recorded in the account and is shown on the right-hand side of the account.

Table 13~~2~~.1: The other changes in the volume of assets and liabilities account - concise form - ~~transactions~~changes in assets

Table 13~~2~~.1 (cont): The other changes in the volume of assets and liabilities account - concise form - ~~transactions~~changes in liabilities and net worth

1. Functions of the other changes in the volume of assets and liabilities account

13.6 In the capital account, produced assets enter and leave the integrated framework of national accounts~~SNA~~ through acquisition less disposal of fixed assets, ~~consumption of fixed capital~~depreciation and additions to, withdrawals from and recurrent losses from inventories. In addition, the capital account also records the depletion of natural resources. In the financial account, most financial assets enter the integrated framework of national accounts~~SNA~~ when the debtor acquires something of value and accepts the obligation to make payment, or payments, to the creditor. Financial assets are extinguished when the debtor has fulfilled the financial obligation under the terms of the agreement.

13.7 Both the capital and financial accounts also record transactions in existing assets and liabilities among the institutional sectors. However, these acquisitions and disposals merely change the ownership of the assets without changing the total net worth for the economy as a whole except where the transactions are between residents and the rest of the world.

13.8 One important function of the other changes in the volume of assets and liabilities account is to allow certain assets to enter and leave the integrated framework of national accounts~~SNA~~ other than by transactions. The acts of entering and exiting from the balance sheet are referred to as economic appearances and disappearances. Some entrances and exits happen when naturally occurring assets, such as subsoil assets, gain economic value or become worthless. Such entrances and exits come about as interactions between institutional units and nature, thus contrasting with entrances and exits that come about as a result of transactions, which typically are interactions by mutual agreement between institutional units. Yet other entrances and exits may also relate to assets created by human activity, such as valuables, purchased goodwill or gold.

13.9 A second function of the account is to record the effects of exceptional, unanticipated events that affect the economic benefits derivable from assets (and corresponding liabilities). These occurrences are referred to as the effect of external events. They include one institutional unit's effectively removing an asset from its owner without the owner's agreement, an action that is not considered a transaction because the element of mutual agreement is absent. These events also include those that destroy assets, such as natural disaster or war.

13.10 A third function of the account is to record changes in classifications of institutional units,~~ and~~ assets and liabilities, and in the structure of institutional units.

13.11 The three sections that follow discuss first the recording of the economic appearance and disappearance of assets and liabilities, then the effects of external events on the value of assets and finally changes in the classification and structure of assets.

2. Appearance and disappearance of assets and liabilities other than by transactions

13.12 Entries relating to the appearance and disappearance of assets and liabilities can be grouped according to the main type of asset under consideration as follows:

a. entries relating to recognition of produced assets;

b. entries relating to entry and exit from the asset boundary of natural resources, with the exception of depletion;

c. entries relating to contracts, leases and licences;

d. changes in purchased goodwill and marketing assets; and

e. entries relating to financial assets and liabilities.

Table ~~12~~13.2 shows a disaggregation of table ~~12~~13.1 including the various entries for economic appearance and disappearance of assets and liabilities.

Economic recognition of produced assets

13.13 Two types of assets can appear under this item: public monuments and valuables. As was described in chapter ~~10~~11, public monuments are objects, structures or sites of significant or special value. Valuables are items held as stores of value because their value is expected to appreciate, or at least not depreciate, over time. The capital account records the acquisition of valuables and public monuments when these are newly produced goods or imported and it records transactions in existing goods already classified as valuables and public monuments.

13.14 However, existing goods, valuables and public monuments may not already have been recorded in the balance sheets for any of several reasons; they may date from a time before the time period covered by the accounts, they were originally recorded as consumption goods or, if structures, they have already been written off.

Public monuments

13.15 Public monuments are included with dwellings and with other buildings and structures in the classification of fixed assets. When the special archaeological, historical or cultural significance of a structure or site not already recorded in the balance sheet is first recognized, it is classified as an economic appearance and recorded in the other changes in the volume of assets and liabilities account. For example, such recognition might be accorded to an existing structure or site that is fully written off and thus no longer recorded in the balance sheet. Alternatively, a structure or site that is already within the asset boundary but is new or only partially written off, may be assessed as having the status of a public monument. If the monument was previously written off, then its recognition as a public monument is recorded as an economic appearance of an asset. If it was previously classified as another type of asset, it is recorded as a reclassification of an asset (discussed below) and if at the same time a new valuation is placed on the monument, this increase in value is recorded under economic appearance. If the reclassification occurs at the time of a sale of the asset, for example the acquisition of an asset by general government, this acquisition is recorded in the capital account as normal.

Valuables

13.16 For valuables, such as precious stones, antiques and other art objects, when the high value or artistic significance of an object not already recorded in the balance sheet is first recognized, it is classified as an economic appearance. Hitherto, the object may have been of little value and not considered an asset. For example, the item might have been considered an ordinary good whose purchase had been included in household final consumption expenditure~~ or been regarded as a consumer durable~~. Recognition of its worth as a store of value leads to its entrance into the balance sheet as a valuable. The recognition of the value of a previously unvalued item is often associated with a sale (for example at auction). The sale is recorded in the capital account as the sale and purchase of a valuable, it having been entered first into the balance sheet of the seller.

Entry of natural resources into the asset boundary

Discoveries and upwards reappraisals of ~~subsoil~~mineral and energy resources

13.17 In the SNA, non-renewable mineral and energy resources~~subsoil assets~~ are defined as those proven subsoil resources of coal, oil and natural gas, of metallic minerals or of non-metallic minerals that are economically exploitable, given current technology and relative prices. This coincides with commercially recoverable resources (class A of SEEA 2012 Central Framework, which is based on the United Nations Framework Classification for Fossil Energy and Mineral Resources (UNFC) 2009). The capital account records depletion as well as acquisitions less~~and~~ disposals~~ among sectors~~ of the resources that exist under those conditions. The other changes in the volume of assets and liabilities account, in contrast, records increases due to discoveries and reappraisals~~ and decreases that change the total volume for the economy as a whole~~.

13.18 One way in which the resources may increase is by the discovery of new exploitable deposits, whether as a result of systematic scientific explorations or surveys or by chance. Economic appearance may also occur because resources may be increased by the inclusion of deposits for which exploitation was previously uneconomic but becomes economic as a result of technological progress or relative price changes. In practice, the economic appearance of these resources can be approximated by those resources for which permissions to exploit have been granted, and/or those for which the existence is explicitly recognised by (past) monetary transactions. Resources for which permissions have been granted would thus come into existence, via other changes in the volume of assets, in the accounts of the lessor (usually government), and the accounts of the lessee (i.e., the extractor) in line with the appropriation of the net present value of the future resource rents.

~~13.18~~13.19 Renewable energy resources may come into existence by exploiting new opportunities to generate electricity through wind turbines, solar panels, and the like. This may result in an increased value of the land, which would typically be reflected in the underlying value of the land. However, if the underlying value of land has not been recognised and valued as an economic asset (e.g., public land) or does not become apparent through market transactions, or land is not involved (e.g., the exploitation of wind turbines on open seas), the value of the renewable energy resource is to be calculated using the net present value of future resource rents. In all cases, the increase in the value of these assets is to be recorded as an other change in the volume of assets.

Natural growth of uncultivated biological resources

~~13.19~~13.20 The natural growth of uncultivated biological resources, such as ~~natural forests and fish stocks~~fish in open seas, ~~may take various forms: a stand of natural timber may grow taller, or fish in the estuaries~~ may take the form of fish becoming~~e~~ more numerous. Although these resources are economic assets, growth of this kind is not under the direct control, responsibility and management of an institutional unit and thus is not treated as production. ~~The increment in the asset must then be regarded as an economic appearance, and it is recorded in the other changes in the volume of assets accoun~~

~~13.20~~13.21 The value of these biological resources may consist of two elements: the natural growth of fish itself, and the value of the underlying asset (i.e., the geographical area through which the fish migrates). In the latter case, the value is often encapsulated in the value of the quota put in place. If the levels of extraction are lower than the sustainable levels, then the regenerative potential of the underlying asset will increase, while it will decrease if the levels of extraction surpass sustainable yields. The latter is treated as depletion, to be recorded as a cost of production. If levels of extraction are lower than sustainable yields, this is to be recorded as negative depletion. Only the natural growth of fish will thus be treated as other changes in the volume of assets. ~~In principle, natural growth should be recorded gross, and the depletion of these resources should be recorded as economic disappearance, as described below. This recording would be consistent with the separate recording of acquisitions and disposals described in the capital account. In practice, however, many countries will record natural growth net because the physical measures that are likely to be the only basis available for the recording are, in effect, net measures. These measures may be used in conjunction with a market price for a unit of the asset to estimate the value of the volume change to be recorded.~~

Transfers of other non-produced natural resources to economic activity

~~13.21~~13.22 Not all land included in the geographic surface area of a country is necessarily within the asset boundary of the SNA. Land may make its economic appearance when it is transferred from a wild or waste state to one in which ownership may be established and the land can be put to economic use. It may also acquire value because of activity in the vicinity, for example, land that becomes more desirable and thus more valuable because a new development is established nearby or the creation of an access road. The cost of land improvements, affecting the parcel of land being considered directly, is treated as gross fixed capital formation, recorded as land improvements and subsequently subject to ~~consumption of fixed capital~~depreciation. Any excess in the increase in value of the land over the value of land improvements or any increase due to adjacent capital activity is recorded as economic appearance.

13.23 For other (non-produced) natural resources, the first substantial market appearance, generally involving commercial exploitation, is the reference point for recording in this account. ~~For virgin forests, gathering firewood is not commercial exploitation, but large-scale harvesting of a virgin forest for timber is and brings the forest into the asset boundary. Similarly~~For example, drawing water from a natural spring does not bring an aquifer into the asset boundary of the SNA, but a significant diversion of groundwater does. A move to charge for regular extraction from a body of surface water may also bring a water resource into the balance sheet. Another example relates to the appearance of rights to use natural resources in the form of radio spectra.

Quality changes in natural resources due to changes in economic uses

~~13.22~~13.24 The SNA, in general, treats differences in quality as differences in volume. As explained with respect to goods and services in chapter ~~15~~18, different qualities reflect different use values (and in the case of goods and services, different resource costs). Different qualities are, therefore, economically different from each other. The same principle applies to non-financial assets. The quality changes recorded here occur as the simultaneous counterparts of the changes in economic use that are shown as changes in classification, as described below. For example, the reclassification of cultivated land to land underlying buildings may result in a change of value as well as a change in classification. In this case, the asset is already within the asset boundary, and it is the change in quality of the asset due to changes in its economic use that is regarded as the appearance of additional amounts of the asset. Another example is that of livestock treated as capital formation, for example, dairy cattle, if they are sent to slaughter earlier than expected.

Exit of natural resources from the asset boundary

~~13.23~~13.25 Exits of natural resources from the balance sheets are shown as negative entries on the left-hand side of the other changes in the volume of assets and liabilities account. Many of the possible entries are simply the negative alternative to the positive entries just discussed. However, depletion of natural resources is recorded as a cost of production.

~~Extractions and d~~Downwards reappraisals of subsoil resources

13.26 Disregarding depletion (see below), ~~T~~the changes recorded here are the negative analogues of gross additions to the level of exploitable subsoil resources that result from reassessments of exploitability because of changes in technology or relative prices. In practice, only net additions may be available, and these will be recorded under discoveries and upwards reappraisals of subsoil resources.

~~13.24~~13.27 Mitigation objectives related to climate change may lead to worldwide reductions in fossil fuel consumption, which may cause losses in the values of corresponding energy resources due to falls in commodity prices. In addition, downwardly bended extraction path projections may give rise to declining energy resource asset values. This phenomenon is also known as stranded assets. Such downward appraisals of the value of energy resources should be recorded as revaluations, not as other changes in the volume of assets. This also holds for related downward changes in the future extraction path.

Depletion

~~13.25~~13.28 The depletion of natural resources ~~covers the reduction in the value of deposits of subsoil assets as a result of the physical removal and using up of the assets.~~, in physical terms, represents the decrease in the quantity or value of the stock of a natural resource over an accounting period that is due to the extraction of the natural resource occurring at a level greater than that of regeneration; in monetary terms, it corresponds with the decline in future income, due to extraction, that can be earned from a resource. Depletion is recorded as a cost of production similar to depreciation, and not as an other change in the volume of assets. See also section I of chapter 7.

Table 13~~2~~.2: The other changes in the volume of assets and liabilities accounts ~~-~~– changes in assets due to economic appearance and disappearance

Table 13~~2~~.2 (cont): The other changes in the volume of assets and liabilities accounts ~~-~~– changes in liabilities and net worth due to economic appearance and disappearance

~~13.26 Harvesting of uncultivated biological resources~~

~~13.27~~

~~13.28 The depletion of natural forests, fish stocks in the open seas and other uncultivated biological resources included in the asset boundary as a result of harvesting, forest clearance, or other use beyond sustainable levels of extraction should be included here.~~

~~13.29~~

Transfers of other natural resources out of economic activity

~~13.30~~13.29 It is possible that some natural resources cease to be deployed in economic activity because of changing technology, or reduced demand for the resulting product or for legislative reasons, for example the suspension of fishing to ensure the survival of fish stocks.

Quality changes in natural resources due to changes in economic uses

~~13.31~~13.30 The changes recorded here are the negative equivalent of the upward changes in volume associated with the changes in classification. For example, if a change in land use leads to reclassifying some land from cultivated land to communal grazing land, there ~~well~~ may be a resulting change in the value of the land.

~~13.32~~13.31 All degradation of land, water resources and other natural assets ~~caused by economic activity is recorded in the other changes in the volume of assets account. The degradation may be an anticipated result from regular economic activity or~~due to less predictable erosion and other damage to land from deforestation or improper agricultural practices~~.~~ should also be considered as a quality change, and thus recorded in the other changes in the volume of assets and liabilities account.

Initiation and cancellation of contracts, leases and licences

13.32 The contracts, leases and licences that can be treated as assets in their own right are all some form of transferable lease, contract or permit. They may relate to the use of a fixed asset under an operating lease, the use of a natural resource under a resource lease, a permit to undertake some specific economic activity or a service contract relating to future services to be provided by a named individual. Non-fungible tokens that grant limited commercial rights are also included under this category. However, in the case of certain natural resources, the relevant asset may already be accounted for as a natural resource (and not as a resource lease), as a result of allocating the natural resource to the lessor and lessee in line with the appropriation of the net present value of future resource rents.

13.33 Holding the operating lease, the resource lease, the permit or the service contract represents an asset for the holder only when two conditions hold:

a. the current prevailing price for the use of the asset, permit or provision of the service differs from the price specified in the contract or lease or paid for the permit, and

b. the holder of the lease, contract or permit can legally and practically realize this difference by subcontracting the lease or contract or on-selling the permit.

In practice, it is recommended to try to record such assets only when they are sold. In this case they are first recorded in the other changes in the volume of assets and liabilities account and subsequently form the basis of a transaction (or series of transactions) in the capital account.

13.34 The value of the contract, lease or licence treated as an asset is equal to the net present value of the excess of the prevailing price over the contract price. It will decline as the period of the agreement declines and the difference in price is no longer evident. Changes in the value of the contract, lease or licence due to changes in the prevailing price are recorded as revaluation; changes due to the expiration of the advantage given by the asset as the time over which it is valid are recorded as other changes in volume. There is more extensive discussion of the treatment of contracts, leases and licences in ~~part 5 of~~ chapter ~~17~~27.

Entry of crypto asset without a corresponding liability designed to act as a medium of exchange

13.35 Crypto assets without a corresponding liability designed to act as a medium of exchange are considered non-produced non-financial assets. As a consequence, the creation of such crypto assets is recorded as other changes in the volume of assets in the accounts of the unit where they appear for the first time. Any remuneration for the miners of these assets are treated as a validation type~~s~~ of service. Changes in the prices are to be recorded as holding gains and losses, in the revaluation account.

Changes in the value of purchased goodwill and marketing assets

~~13.35~~13.36 When an enterprise, whether a corporation, quasi-corporation or unincorporated enterprise, is sold, the price paid may not equal the sum of all the assets less the liabilities of the enterprise. The difference between the price paid and the sum of all the assets less liabilities is called the purchased goodwill and marketing assets of the enterprise. The value may be positive or negative (or zero). By its calculation and designation as an asset of the enterprise, the net worth of the enterprise at the moment it is bought is exactly zero, whatever the legal status of the enterprise.

~~13.36~~13.37 The value of purchased goodwill and marketing assets is calculated at the time of the sale, entered in the books of the seller in the other changes in the volume of assets and liabilities account and then exchanged as a transaction with the purchaser in the capital account. Thereafter the value of the purchased goodwill and marketing asset must be written down in the books of the purchaser via entries in the other changes in the volume of assets and liabilities account. The rate at which it is written down should be in accordance with commercial accounting standards. These are typically conservative in the amount that may appear on the balance sheet of an enterprise and should be subject to an "impairment test" whereby an accountant can satisfy himself that the remaining value is likely to be realizable in case of a further sale of the enterprise.

~~13.37~~13.38 Goodwill that is not evidenced by a sale or purchase is not considered an economic asset in the SNA. Exceptionally, a marketing asset may be subject to sale. When this is so, entries should be made for the buyer and the seller along the lines of those made for purchased goodwill and marketing assets when the entire enterprise is sold.

Appearance and disappearance of financial assets and liabilities

~~13.38~~13.39 Financial assets that are claims on other institutional units are created when the debtor accepts the obligation to make a payment, or payments, to the creditor in the future; they are extinguished when the debtor has fulfilled the obligation under the terms of the agreement. Monetary gold held in the form of gold bullion, however, cannot be created and extinguished in this way; hence when it becomes a reserve asset it enters the financial part of the balance sheet as a reclassification in the other changes in the volume of assets and liabilities account from valuables to monetary gold. (At the time it is acquired by a monetary authority it is first classified as a valuable.) The same recording is followed for allocated gold accounts that become part of monetary gold. When allocated gold accounts become reserve assets they are reclassified from currency and deposits to monetary gold, also in the other changes in the volume of assets and liabilities accounts. Gold bullion under reverse transactions (i.e., gold swaps), which is not readily available for meeting balance of payments financing needs, is also recorded as an other change in the volume of reserve assets; see also paragraph 12.46. Monetary gold may be sold to another monetary authority but otherwise any reduction in holdings follows a similar declassification path; the monetary gold is reclassified to be either a valuable (in the case of gold bullion) or currency and deposits (in the case of allocated gold accounts). Subsequent transactions, if and when they occur, are recorded in terms of valuables or currency and deposits and not in terms of monetary gold.

~~13.39~~13.40 Also recorded here are the effects of events not anticipated when the terms of financial claims were set.

Debt operations

~~13.40~~13.41 There are a number of circumstances that may lead to reduction or cancellation of debt by other than normal repayment of liabilities. The most common instances are described below.

~~13.41~~13.42 A debtor and creditor may become parties to a bilateral agreement (often referred to as "debt forgiveness") that a financial claim no longer exists. Such an agreement gives rise in the integrated framework of national accounts~~SNA~~ to the recording of a capital transfer payable or receivable (recorded in the capital account at the time the debt forgiveness occurs) and the simultaneous extinction of the claim (recorded in the financial account). Debt forgiveness usually concerns government debt. Some taxes and social security contributions that government recognizes as unlikely to be collected from the outset are excluded from tax and social security contribution receipts and so do not appear in the other changes in the volume of assets and liabilities account.

~~13.42~~13.43 Changes in claims resulting from debt assumption or rescheduling should be reflected in the financial account when the terms of the debt contract (maturity, interest rate, etc.) change, or when the institutional sector of the creditor or debtor changes, as these are considered new contractual arrangements. However, all other changes in claims resulting from write-offs and write-downs are excluded from the financial account because there is no mutual agreement between the parties. Specifically, a creditor may recognize that a financial claim can no longer be collected because of bankruptcy, liquidation or other factors for which there is public evidence of loan deterioration, and he may remove the claim from his balance sheet. This recognition (by the creditor) should be accounted for in the other changes in the volume of assets and liabilities account. (The corresponding liability must also be removed from the balance sheet of the debtor to maintain balance in the accounts of the total economy.)

~~13.43~~13.44 Most commercial situations where the impossibility of debt collection is recognized are treated as unilateral cancellation of debt. Unilateral cancellation of a financial claim by a debtor (debt repudiation) is not recognized in the SNA. Write-downs that reflect changes in the actual market values of financial assets should be accounted for in the revaluation account. However, changes in value that are imposed solely to meet regulatory, supervisory or accounting requirements do not reflect the actual market values of those financial assets and should not be recorded in the SNA.

~~13.44~~13.45 Another debt-related operation that raises questions as to how it should be recorded in the integrated framework of national accounts~~SNA~~ relates to debt defeasance. Debt defeasance allows a debtor (whose debts are generally in the form of debt securities and loans) to remove certain liabilities from the balance sheet by pairing irrevocably assets of equal value to the liabilities. Subsequent to the defeasance, neither the assets nor the liabilities are included in the balance sheet of the debtor, nor, frequently, need they be reported for statistical purposes. Defeasance may be carried out either by placing the paired assets and liabilities in a trust account within the institutional unit concerned, or by transferring them to another institutional unit. In the former case, no entry is recorded for defeasance and the assets and liabilities will not be excluded from the balance sheet of the unit. In the latter case, the transactions by which the assets and liabilities are moved to the second institutional unit are recorded in the financial account of the units concerned and reported in the balance sheet of the unit that holds the assets and liabilities. Therefore, debt defeasance as such never results in assets and liabilities being removed from the SNA, although it sometimes leads to a change in the institutional unit that reports those assets and liabilities.

Creation and ~~exhaustion~~expiration of financial derivatives

~~13.45~~13.46 Typically there are no entries in the other change in the volume of assets accounts for financial derivatives. Financial derivatives appear in the financial account when an agreement is reached between the two parties concerned. Employee stock options are similarly recorded in the same account at the grant date. They then may be subject to transactions in the financial account. When the agreement described in the derivative is activated, or it lapses because the time period is exhausted, the value of the derivative becomes zero and the change in value is shown in the revaluation account.

~~13.46~~13.47 If the amount payable under a derivative remains due for payment after the derivative matures, the amount due no longer represents a derivative as there is no longer any risk associated with it. It is therefore reclassified as an other account receivable or payable.

3. The effect of external events on the value of assets and liabilities

~~13.47~~13.48 There are three principal causes of the reduction in value of an asset (and related liability), or even its total disappearance, that are not related to the nature of the asset but to conditions prevailing in the economy that impact either the value or ownership of assets. These are catastrophic losses, uncompensated seizures and other ~~volume~~ changes in volume not elsewhere classified ~~of assets~~. Each is discussed below. Table ~~12~~13.3 shows an expansion of table ~~12~~13.1 to include entries for these events.

Table 13~~2~~.3: The other changes in the volume of assets and liabilities account - changes in assets due to external events

Table 1~~2~~3.3 (cont): The other changes in the volume of assets and liabilities account - changes in liabilities due to external events

Catastrophic losses

~~13.48~~13.49 The volume changes recorded as catastrophic losses in the other changes in the volume of assets and liabilities account are the result of large scale, discrete and recognizable events that may destroy a significantly large number of assets within any of the asset categories. Such events will generally be easy to identify. They include major earthquakes, volcanic eruptions, tidal waves, exceptionally severe hurricanes, drought and other natural disasters; acts of war, riots and other political events; and technological accidents such as major toxic spills or release of radioactive particles into the air. Included here are such major losses as deterioration in the quality of land caused by abnormal flooding or wind damage; destruction of ~~cultivated assets~~biological resources by forest fires, drought or outbreaks of disease; destruction of buildings, equipment or valuables in flooding, forest fires or earthquakes.

~~13.49~~13.50 Catastrophic losses of financial assets are less common but where evidence of ownership depends on written records and these records are destroyed, it may not be possible to re-establish ownership. Accidental destruction of currency or bearer securities may result from a natural catastrophe or political events.

Uncompensated seizures

~~13.50~~13.51 Governments or other institutional units may take possession of the assets of other institutional units, including non-resident units, without full compensation for reasons other than the payment of taxes, fines, or similar levies. If the compensation falls substantially short of the values of the assets as shown in the balance sheet, the difference should be recorded as an increase in assets for the institutional unit doing the seizing and a decrease in assets for the institutional unit losing the asset under the entry for uncompensated seizures of assets.

~~13.51~~13.52 It should be noted that foreclosures and repossessions of goods by creditors are not treated as uncompensated seizures. They are treated as transactions, specifically as disposals by debtors and acquisitions by creditors, because, explicitly or by general understanding, the agreement between debtor and creditor provided this avenue of recourse.

Other changes in volume n.e.c.

~~13.52~~13.53 The value of a fixed asset is continually reduced by the ~~consumption of fixed capital~~depreciation until the asset is disposed of or has no remaining value. It is possible, though, for the assumptions underlying the calculation of ~~consumption of fixed capital~~depreciation to be mistaken and when this is so, corrections need to be made in the other changes in the volume of assets and liabilities account. Similarly, if the assumption about the rate of shrinkage of inventories is mistaken, this should also be corrected in the other changes in the volume of assets and liabilities account. The financial assets and liabilities that can be affected by volume change are some of the reserves for insurance, pension and standardized guarantee schemes. There is further discussion of this in ~~parts 1, 2 and 3 of~~ chapters ~~17~~24 and 25.

Fixed assets

~~13.53~~13.54 The calculation of the ~~consumption of fixed capital~~depreciation reflects an assumption about normal rates of physical deterioration, obsolescence and accidental damage. Each of these assumptions may prove to be faulty. In that case, an adjustment in the other changes in the volume of assets and liabilities account must be made. In principle, revised assumptions, reflecting the new circumstances, should then be used to calculate ~~consumption of fixed capital~~depreciation for the remainder of the asset's useful life. If this is not done, continual adjustment in the other changes in the volume of assets and liabilities account is necessary and the measure of net value added in subsequent years is overstated.

~~13.54~~13.55 Physical deterioration may include the effect of unforeseen environmental degradation on fixed assets. Entries must, therefore, be made in the other changes in the volume of assets and liabilities account for the decline in the value of the fixed assets from, for example, the effects of acidity in the air and acid rain on building surfaces or vehicle bodies.

13.56 The introduction of improved technology such as improved models of the asset or of a new production process that no longer requires the asset may lead to unforeseen obsolescence. In consequence, the amount included for their previously expected obsolescence may fall short of the actual obsolescence.

~~13.55~~13.57 Military weapons systems comprising vehicles and other equipment such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc. are used continuously in the production of defence services, even if their peacetime use is simply to provide deterrence. Depreciation of these systems is typically based on its use in peacetime. More than expected decreases in value, due to their use and destruction in war times, should be recorded as other changes in the volume of assets.

~~13.56~~13.58 More generally, ~~T~~the amount included for normally expected damage may fall short of the actual damage. For the economy as a whole, this difference should normally be small; for individual units this difference may be significant and may fluctuate in sign. Adjustments must therefore be made in the other changes in the volume of assets and liabilities account for the decline in the value of the fixed assets due to these events. These losses are larger than normal, but are not on a scale sufficiently large to be considered catastrophic.

~~13.57~~13.59 As explained in chapter ~~10~~11, costs of ownership transfer should be written off over the expected time the asset will be in the possession of the purchaser. If the asset is disposed of before the costs of ownership transfer are completely written off, the remainder should also be recorded in the other changes in the volume of assets and liabilities account.

~~13.58~~13.60 It is possible that the initial assumptions on any or all of these conditions were overcautious. If that proves to be so, then an upward revision to the value of the asset should be made rather than a downward one.

~~13.59~~13.61 Production facilities with long construction periods may cease to have an economic rationale before they are complete or are put into service. For example, a nuclear power plant or industrial site may never be put into service. When the decision to abandon is made, the value of the fixed asset (or in some case, work-in-progress inventories, as explained in chapter ~~10~~11), as recorded in the balance sheet should be written off in the other changes in the volume of assets and liabilities account.

Exceptional losses in inventories

13.62 Exceptional losses from fire damage, from robberies, from insect infestation of grain stores, from an unusually high level of disease in livestock, etc., should be recorded here. In this context, exceptional losses indicate that the losses are not only large in value but also irregular in occurrence. Even very large losses, if they occur regularly, should be taken into account when calculating the change in inventories calculated for entry in the capital account as explained in chapter ~~10~~11.

Natural resources

~~13.60~~13.63 The valuation of natural resources is typically based on the net present value of expected future resource rents. The calculation of these values relies on a number of assumptions, such as the expected path of extractions, the discount rate, etc. Changes in these assumptions, not driven by changes in expected resource rents as a result of, for example, changes in the longer term expectations of commodity prices or price changes in the costs of extraction, should be recorded as other changes in the volume of assets. However, the stranding of assets due to changes in commodity prices should generally be recorded as revaluations; see paragraph 13.27.

Life insurance and annuities entitlements

~~13.61~~13.64 For an annuity, the relationship between premiums and benefits is usually determined when the contract is entered into, taking account of mortality data available at that time. Any subsequent changes will affect the liability of the annuity provider towards the beneficiary and the consequences are recorded here.

Pension entitlements

~~13.62~~13.65 The changes in the volume of reserves for pension entitlements apply to defined benefit schemes, those where the pension to be provided is determined wholly or in part by a formula. No such adjustments are needed for defined contribution schemes where the benefits are determined solely in terms of the investment earnings on contributions fed into the scheme.

13.66 ~~The exact delineation between which changes in pension entitlements are treated as transactions and which as other changes in the volume of assets is still being researched. Part 2 of chapter 17 describes the present situation.~~Because the nature of a defined benefit pension scheme is that the amounts due are determined by a formula, there are several factors other than increases from current and past service, and the unwinding of the pensions entitlements, that may intervene to change the level of entitlements. These factors include, for example, actuarial gains and losses, i.e., changes in entitlements resulting from experience adjustments (the effects of differences between the previous actuarial assumptions and what has actually occurred) and the effects of changes in actuarial assumptions, among which changes in the discount rate, changes in demographic assumptions about life length and other changes in the formula used to determine benefits. It may also include the impact of settlements that eliminate all further entitlements for part or the whole of entitlements. These changes in entitlements are generally to be recorded as other changes in the volume of assets and liabilities, unless they are clearly driven by a price element (such as change in the estimates of entitlements due to changes in the expected levels of price indexation). Changes in volume of assets and liabilities may also arise from non-negotiated changes in the terms of pension entitlements. Negotiated changes are generally recorded as capital transfers. For more information, reference is made to chapter 24.

Provisions for calls under standardized guarantee schemes

~~13.63~~13.67 If standardized guarantees are provided on a purely commercial basis, the provisions for calls will be covered by the fees paid and investment earnings on them and possible recoveries from the debtor in default. However, government often underwrites such schemes. When it does so, a provision should be entered in the government accounts for the expected excess of calls under the scheme over any fees received, investment income or recoveries made. If the guarantees cover a long period and there is provision for government to claim assets in the case of default, this expected excess should be calculated on the basis of the net present value of calls to be made under the scheme. An entry is required whenever a new scheme is introduced or a significant change to the expected level of calls is recognized, beyond what will be recovered by fees or other means.

4. Changes in classifications

~~13.64~~13.68 The other changes in the volume of assets and liabilities account records changes in assets and liabilities that reflect nothing more than changes in the classification of institutional units among sectors, changes in the structure of institutional units and changes in the classification of assets and liabilities. Table ~~12~~13.4 shows an expansion of table ~~12~~13.1 to include the entries for changes in classification.

Table 13~~2~~.4: The other changes in the volume of assets and liabilities account - changes in assets due to changes in classifications

Table 13~~2~~.4 (cont): The other changes in the volume of assets and liabilities account - changes in liabilities and net worth due to changes in classifications

Changes in sector classification and structure

~~13.65~~13.69 Reclassifying an institutional unit from one sector to another transfers its entire balance sheet. For example, if an unincorporated enterprise becomes more financially distinct from its owner and takes on the characteristics of a quasi-corporation, it and its balance sheet move from the household sector to the non-financial corporations sector; or if a financial corporation is newly authorized to take deposits, it may be reclassified from “other financial intermediaries” to “deposit-taking corporations except the central bank”.

~~13.66~~13.70 If a household moves from one economy to another, taking its possessions (including financial assets) with it, they are also recorded under changes in classifications and structures. As there is no change in ownership of the possessions, there can be no transaction in them.

~~13.67~~13.71 Chapter ~~21~~28 discusses the flows to be recorded when there is corporate restructuring, either when two corporations merge, when one is taken over by another group or when one corporation is split into two or more units. Most of the resulting financial consequences are recorded as transactions but some may be recorded as other volume changes. Chapter ~~21~~28 also discusses the implications of nationalization and privatization, describing when the consequences are treated as transactions and when as other volume changes including reclassification by sector.

~~13.68~~13.72 In the case of from-whom-to-whom tables (see chapter 37), ~~R~~reclassification is needed as a result of trading in securities. When unit A sells a security to unit B, A has a liability and B an asset. If B now sells the same asset to unit C, the transaction between B and C is recorded in the financial account as the sale of a security. Although A is not involved in the sale and purchase of the security between B and C, A’s balance sheet is affected as the liability originally owed to B is now owed to C. This reclassification is shown in the other changes in the volume of assets and liabilities account.

Changes in classification of assets and liabilities

~~13.69~~13.73 An asset may appear under one heading in the opening balance sheet and under another in the closing balance sheet. Since transactions in assets must be registered as an increase in holding by one party and a decrease in the holding of the same asset by another, the process of change of classification must be recorded in the other changes in the volume of assets and liabilities account. The asset may be first recorded as a transaction under the original classification and then recorded as changing its classification in the balance sheet of the new owner. Alternatively, it may be shown first as a reclassification by the first owner and then as a transaction under its new classification. If the change in classification leads to a change in value, it is treated as a quality change, and thus a change in volume, as described earlier under the discussion on economic appearance and disappearance. The choice between whether to reclassify and then record transactions or vice versa depends on the nature of the transactors and the question of whether the original or new owner benefits from the change in price. Some examples of reclassifications are described below.

Sale and reclassification of land and buildings

~~13.70~~13.74 Unit A sells farm land to unit B, which uses it to build houses on. If A acquires planning permission before selling the land it should be registered as a change in classification in A's accounts (with a probable gain in value to be recorded as an other volume change also in A's accounts), and then a sale of building land to B. If B acquires planning permission after the sale is complete, then it is farm land that is sold and B records a change of classification (and possibly an other volume change) in its books.

~~13.71~~13.75 Similar considerations apply to buildings if they are converted from a dwelling to commercial premises or vice versa in response to official designation about the allowed purpose of a building in that location. A conversion resulting solely from new investment in a previous building is not an other change in the volume of the asset but the result of gross fixed capital formation.

Changes of classification involving inventories

~~13.72~~13.76 In all instances, work-in-progress needs to be reclassified to finished goods once completed~~prior to sale~~. Some animals treated as fixed capital because they are kept as dairy stock or for their fleece may be slaughtered for meat at the end of their productive lives. In this case, they should in principle be reclassified from fixed capital to inventories when they cease to yield repeat products. If this is not practicable, or deemed too fastidious, then some of the source of meat should be accounted for by a reduction in fixed capital rather than a withdrawal from inventories. In principle, reclassification from one type of inventory to another or from fixed capital to inventories, should not involve a change in value. If at the time of conversion the previous valuation is different from the appropriate new valuation, an entry in the other changes in the volume of assets and liabilities account is recorded under economic appearance or disappearance as appropriate. If this is found to be happening systematically, the valuation techniques for inventories should be re-examined.

5. Summarizing other volume changes

~~13.73~~13.77 Tables ~~12~~13.2 to ~~12~~13.4 show details of other volume changes for each type of change with details for each asset as a second level of classification. The information there can be aggregated by type of assets, regardless of the cause for the volume change, as shown in table ~~12~~13.5. This is the form in which information from the other change in the volume of assets account feeds into the reconciliation between opening and closing balance sheets.

Table 13~~2~~.5: The other changes in the volume of assets and liabilities account - changes in asset by type of asset

Table 13~~2~~.5 (cont):The other changes in the volume of assets and liabilities account - changes in liabilities and net worth by type of liability

C. The revaluation account

1. Different holding gains and losses concepts

~~13.74~~13.78 The revaluation account, shown in table ~~12~~13.6, records the holding gains or losses accruing during the accounting period to the owners of non-financial and ~~non-~~financial assets and liabilities. The first entries relate to nominal holding gains and losses which are then decomposed into neutral holding gains and real holding gains. Holding gains or losses on assets are recorded on the left-hand side of the account and those on liabilities on the right-hand side.

Table 13~~2~~.6: The revaluation account - changes in assets

Table 13~~2~~.6 (cont): The revaluation account - changes in liabilities and net worth

~~13.75~~13.79 ***The nominal holding gain on a non-financial asset is the value of the benefit accruing to the owner of that asset as a result of a change in its price over a period of time. The nominal holding gain on a financial asset is the increase in value of the asset, other than transactions in the assets (including the accrual of interest over a period of time) and other changes in the volume of assets and liabilities. The nominal holding gain on a liability is the decrease in value of the liability, other than by transactions or by other volume changes***. A nominal holding gain that is negative is referred to as a holding loss. A positive holding gain, whether due to an increase in the value of a given asset or a reduction in the value of a given liability, increases the net worth of the unit in question. Conversely, a holding loss reduces the net worth of the unit in question, whether due to a reduction in the value of a given asset or an increase in the value of a given liability.

~~13.76~~13.80 As well as the absolute change in value of an asset, it is interesting to know how the change in value compares with a general measure of inflation. When the value of an asset rises over a given period of time by more than the general price level, the asset can be exchanged for a greater volume of the goods, services and assets covered by the general price index at the end of the period than at the beginning. The increase that preserves exactly the same volume of goods and services is called a neutral holding gain. A neutral holding gain (loss) over a period is the increase (decrease) in the value of an asset that would be required, in the absence of transactions and other changes in the volume of assets and liabilities, to maintain command over the same amount of goods and services as at the beginning of the period.

~~13.77~~13.81 The difference between the nominal holding gain or loss and the neutral holding gain or loss for the same asset over the same time period is called the real holding gain or loss. If the value of the asset increases faster than the neutral holding gain, then there is a real holding gain. If the value of the asset does not increase as fast as the overall increase in prices, or does not increase at all, the owner of the asset registers a real holding loss. A real holding gain (loss) is the amount by which the value of an asset increases (decreases) over the neutral holding gain for the period, in the absence of transactions and other changes in the volume of assets and liabilities. Nominal, neutral and real holding gains, and the interrelationships between them are explained more fully in the following sections.

~~13.78~~13.82 The balancing item in the revaluation account is described as changes in net worth due to nominal holding gains or losses. It is defined as the algebraic sum of the positive or negative nominal holding gains on all the assets and liabilities of an institutional unit. Just as nominal holding gains are decomposed into neutral and real holding gains, so changes in net worth due to nominal holding gains may be decomposed into changes in net worth due to neutral holding gains or losses and changes in net worth due to real holding gains or losses. The latter is an item of considerable analytic interest.

~~13.79~~13.83 In order to simplify the terminology and exposition, holding losses will not usually be referred to explicitly unless the context requires it. The term “holding gains” is used to cover both holding gains and losses on the clear understanding that holding gains may be negative as well as positive. Similarly, the term “assets” is used collectively to cover both assets and liabilities, unless the context requires liabilities to be referred to specifically.

~~13.80~~13.84 Holding gains are sometimes described as “capital gains”. The term “holding gain” is widely used in business accounting and is preferred here because it emphasizes the fact that holding gains accrue purely as a result of holding assets over time without transforming them in any way. Holding gains include not only gains on “capital” such as fixed assets, land and financial assets but also gains on inventories of all kinds of goods held by producers, including work-in-progress, often described as “stock appreciation”. For most financial assets, a holding gain experienced by one unit is matched, in whole or in part, by a holding loss for the unit holding the counterpart liability. This is not so for non-financial assets as there are no non-financial liabilities.

~~13.81~~13.85 When an asset whose value has increased because of a nominal holding gain is sold or otherwise disposed of, the holding gain is said to be realized. If the asset is retained by the existing owner, the holding gain is unrealized. In common usage, a realized gain is usually understood as the gain realized over the entire period over which the asset is owned or liability is outstanding whether this period coincides with the accounting period or not. Within the SNA, however, all holding gains and losses are measured only from the start of the accounting period. A holding gain (loss) is realized when an asset that has increased (decreased) in value due to holding gains (losses) since the beginning of the accounting period is sold, redeemed, used or otherwise disposed of, or a liability incorporating a holding gain or loss is repaid. An unrealized holding gain is one accruing on an asset that is still owned or a liability that is still outstanding at the end of the accounting period. It follows that the nominal holding gain or loss on an asset is the sum of the realized and unrealized holding gain or loss for the period in question.

Nominal holding gains

~~13.82~~13.86 It is useful to distinguish four different situations giving rise to nominal gains and the methods of valuation to be employed in each case. For clarity of exposition, it is assumed for the moment that there are neither transactions nor other changes in volume intervening between the two dates mentioned.

a. An asset held throughout the accounting period: the nominal holding gain accruing during the accounting period is equal to the closing balance sheet value minus the opening balance sheet value. These values are the estimated values of the assets if they were acquired at the times the balance sheets are drawn up. The nominal gain is unrealized.

b. An asset held at the beginning of the period that is sold during the period: the nominal holding gain accruing is equal to the ~~actual or estimated~~ disposal value minus the opening balance sheet value. The nominal gain is realized.

c. An asset acquired during the period and still held at the end of the period: the nominal holding gain accruing is equal to the closing balance sheet value minus the actual, or estimated, acquisition value of the asset. The nominal gain is unrealized.

d. An asset acquired and disposed of during the accounting period: the nominal holding gain accruing is equal to the ~~actual, or estimated,~~ disposal value minus the actual, or estimated, acquisition value. The nominal gain is realized.

~~13.83~~13.87 The basic identity linking balance sheets, transactions, other volume changes and nominal holding gains may be expressed as follows:

the value of the stock of the asset in the opening balance sheet valued at the date of the opening balance sheet,

plus the value of the asset acquired, or disposed of, in transactions valued at the dates the transactions took place,

plus the value of other changes in the volume of the asset valued at the dates the other volume changes are recorded as taking place,

plus the value of the nominal holding gains on the asset,

equals the value of the stock of the asset in the closing balance sheet, valued at the date of the closing balance sheet.

The values of the assets and liabilities in the closing balance sheet incorporate the unrealized holding gains or losses. The value of transactions includes the value of realized holding gains or losses. It therefore follows that the correct value of the revaluation item must cover both realized and unrealized holding gains, in other words to be the full value of the nominal holding gains or losses.

~~13.84~~13.88 Because the total nominal holding gains accruing on a particular category of asset over a given period of time include those accruing on assets acquired or disposed of during the accounting period as well as on assets that figure in the opening or closing balance sheets, it is not possible to calculate total holding gains from balance sheet data on their own. This can be demonstrated by means of a simple example.

~~13.85~~13.89 Suppose a corporation owns 100 units of a stock (inventories or shares, for instance) at the beginning of the period and these are worth 20 each or 2 000 in total. At some point in the period, when the price per unit has risen to 22, another 15 units are bought; a cost of 330. At the end of the period, when the price has risen to 25, some 15 units are sold for a value of 375. The value of the stock in the closing balance sheet represents 100 units valued at 25 each or 2 500. The increase in the balance sheet of 500 represents unrealized holding gain on the stock of 100 units. The value of the transactions represents a decrease in the balance sheet since the value of the stock added to the balance sheet (330) is less than the value of stock sold (375). The difference, -45, is a reduction in net worth brought about by realizing some holding gains. The total nominal holding gain is thus 545 which satisfies the identity that the opening stock (2 000) plus the transactions (-45) plus the nominal holding gains (545) plus the other changes in the volume of assets and liabilities (0) equals the value in the closing balance sheet (2 500).

~~13.86~~13.90 In order to calculate total holding gains directly, therefore, it is necessary to keep records of all the assets acquired and disposed during the accounting period and the prices at which they were acquired and disposed of, as well as the prices and quantities of assets held at the beginning and end of the period. This sort of recording is more common for financial assets and liabilities than for non-financial assets.

~~13.87~~13.91 Each of the five elements that make up the identity in paragraph 13.87~~12.82~~ explaining the changes in the balance sheet can be calculated directly and independently of the other four elements. Thus, each element has the same status, none of them being defined residually as a balancing item. Nevertheless, it follows that if any four out of the five elements are calculated directly, the fifth can be estimated residually. For this reason, the identity can be exploited to estimate nominal holding gains from the other four elements, but without this implying that nominal holding gains are a balancing item in the SNA.

Neutral holding gains

~~13.88~~13.92 In order to calculate the neutral holding gain on an asset, it is desirable to select a comprehensive price index covering as wide a range of goods, services and assets as possible. In practice, the price index for final expenditures is an acceptable choice for most countries, although other comprehensive indices could be used depending upon the availability of data. A comprehensive index of this kind, however, may be available only once a year, or at best quarterly, and after a significant lapse of time. As holding gains may accrue on assets held for only short periods of time, it may also be necessary to make use of an index that measures changes in prices monthly and that becomes available without too much delay. The consumer price index (CPI) usually meets these requirements and an acceptable procedure would be to use the CPI to interpolate and extrapolate movements in a more broadly based index in order to calculate neutral holding gains.

~~13.89~~13.93 The neutral holding gain on an asset over a given period of time is equal to the value of the asset at the beginning of the period multiplied by the proportionate change in some comprehensive price index selected to measure the change in the general price level. Neutral holding gains can, therefore, easily be calculated for assets held throughout the accounting period that appear in both the opening and closing balance sheets. It is more difficult, however, to keep track of the neutral holding gains on assets that are acquired or disposed of during the accounting period unless the times at which the various acquisitions and disposals took place are known.

Real holding gains

~~13.90~~13.94 The real holding gain on an asset is defined as the difference between the nominal and the neutral holding gain on that asset. The values of the real holding gains on assets thus depend on the movements of their prices over the period in question, relative to movements of other prices, on average, as measured by the general price index. An increase in the relative price of an asset leads to a positive real holding gain and a decrease in the relative price of an asset leads to a negative real gain, whether the general price level is rising, falling or stationary.

~~13.91~~13.95 The nominal holding gains on domestic currency, deposits and loans denominated in domestic currency are always zero. During inflation, the neutral gains on such assets and liabilities must be positive and hence the real holding gains must be negative and equal in absolute value to the neutral gains. In other words, the real value of these assets declines both for the creditor and the debtor as a result of inflation. From the point of view of the debtor a reduction in the real value of a liability represents an increase in net worth expressed in real terms. In effect, there is an implicit transfer of real purchasing power from the creditor to the debtor equal in value to the negative real holding gain on the asset or liability. When such transfers are anticipated by creditors, correspondingly higher nominal rates of interest may be demanded on loans and offered on deposits to compensate for the expected transfers, or loans with fixed monetary values may be replaced by indexed loans.

~~13.92~~13.96 As changes in relative prices may be either positive or negative, the owners of some assets benefit from real holding gains while the owners of other assets experience real holding losses. Real holding gains may lead to a significant redistribution of real net worth among institutional units, sectors and even countries, the extent of which depends on the amount of variation in the relative price changes taking place. While such variations may occur even when there is no general inflation, there are systematic effects that are associated with the general rate of inflation as a result of the decline in the real values of ~~monetary~~ assets and liabilities when the general price level is rising.

~~13.93~~13.97 As real holding gains increase or decrease the purchasing power of the owners of assets, they exert an influence on their economic behaviour. Real holding gains are important economic variables in their own right as well as for purposes of analysing consumption or capital formation. It can be argued that real holding gains ought to be assimilated with income as defined in the integrated framework of national accounts~~SNA~~ to obtain a more comprehensive measure of income, but there is no consensus on this. Apart from the practical difficulty of estimating real holding gains and losses, it is likely that their impact on economic behaviour is not the same as that of income received in cash or in kind. Nevertheless, it is clear that information on real holding gains needs to be made available to users, analysts and policymakers.

~~13.94~~13.98 As real holding gains may be obtained residually by subtracting neutral from nominal holding gains, the feasibility of calculating real holding gains depends on the feasibility of calculating nominal and neutral gains.

2. Holding gains and losses on specific assets

Fixed assets

~~13.95~~13.99 Nominal holding gains are calculated with reference to assets or liabilities that themselves remain qualitatively and quantitatively unchanged during the period over which the holding gain is measured. Thus, changes in the value of physical assets such as structures, equipment or inventories held by producers that are attributable to some physical or economic transformation of those assets over time, whether improvement or deterioration, are not counted as holding gains. In particular, the decline in the value of the fixed assets owned by producers due to their physical deterioration or normal rates of obsolescence or accidental damage is recorded as ~~consumption of fixed capital~~depreciation and not as a negative holding gain.

~~13.96~~13.100 ~~Consumption of fixed capital~~Depreciation should be calculated by valuing the opening and closing stock at the average price of the period precisely in order to ensure it excludes any holding gains. Often the price at the mid-point of the period is taken as the average price of the period. Under moderate rates of inflation this may be an acceptable approximation but is less so the higher the rate of inflation and under severe inflation is very misleading.

~~13.97~~13.101 Nominal holding gains may occur on existing fixed assets either because of general inflation or because the price of the asset itself changes over time. When assets of the same kind are still being produced and sold on the market, an existing asset should be valued in the opening or closing balance sheet at the current purchaser's price of a newly produced asset less the accumulated ~~consumption of fixed capital~~depreciation up to that time also calculated on the basis of the prices prevailing at the time the balance sheet is drawn up. When new assets of the same type are no longer being produced, the valuation of existing assets may pose difficult conceptual and practical problems. If broadly similar kinds of assets are still being produced, even though their characteristics may differ significantly from those of existing assets (for example, new models of vehicles or aircraft), it may be reasonable to assume that, if the existing assets were still being produced, their prices would have moved in the same way as those of new assets. However, such an assumption becomes questionable when the characteristics of new assets are much improved by technical progress. There is further discussion on this topic in the OECD Manual on Measuring Capital, Second edition.

Inventories

~~13.98~~13.102 The estimation of nominal holding gains on inventories may be difficult because of lack of data on transactions or other volume changes in inventories. As explained in chapter ~~6~~7, transactions in inventories of work-in-progress and finished goods may not be adequately recorded because they are internal transactions. Goods entering inventories can be regarded as being acquired by the owner of an enterprise from itself as producer, while goods leaving inventories can be regarded as being disposed of by the owner to the producer for use in production or for sale. These internal transactions should be valued at the prices prevailing at the times they take place. The value of withdrawals thus includes any holding gains on the inventories when stored and this ensures that the value of the holding gain is not included in output. However, as explained in paragraphs ~~6.142~~ 7.142 to ~~6.145~~ 7.145, when the storage of goods is essentially an extension of the process of production, the increase in the value of the goods that is due to this production is not to be counted as a nominal holding gain. In the case of goods for resale, the value of the goods when withdrawn from inventory should include the value of any holding gain or loss that has occurred while they were in store but not the value of any margin to be realized by the wholesaler or retailer. That is to say, goods withdrawn from inventories are valued at the prices prevailing at the time of withdrawal for goods in the same state as when the goods entered inventories (except for the storage case).

~~13.99~~13.103 Other volume changes are likely to consist of inventories of goods destroyed as a result of exceptional events such as natural disasters (floods, earthquakes, etc.) or major fires. Recurrent losses of goods from inventories, such as losses due to regular wastage or pilfering, are treated in the same way as deliberate withdrawals. Nominal holding gains on inventories thus relate only to the level of inventories once both exceptional and recurrent losses on inventories have been taken into account.

13.104 Unless records are kept of the quantities of goods entering and leaving inventories and their prices at those times, it is not possible to measure the value of changes in inventories directly. As such records may not be available, it becomes necessary to try to deduce the value of changes in inventories from the value and quantities of the opening and closing inventories using methods that attempt to partition the difference between the values of the opening and closing stocks of assets into transactions and nominal holding gains. Such methods are only as good as the assumptions on which they are based. Estimating holding gains and losses based only on period end data involves two problematical assumptions. The first is that prices increase linearly throughout the period; the second is that the changes in volume of inventories increase or decrease linearly between opening and closing balance sheets. Both assumptions are improbable, especially in the case of seasonal products. It should also be noted that this is not only a problem for the accumulation accounts as the values of changes in inventories of inputs and outputs are needed in order to measure intermediate consumption, output and value added and hence all the balancing items of the SNA. In general, if these sorts of assumptions need to be made in order to derive holding gains and losses, they should be made over as short a period as possible. In particular, the aggregation of quarterly estimates of this type will be preferable to an annual estimate of the same type.

Natural resources

~~13.100~~13.105 Natural resources, such as mineral and energy resources and biological resources yielding once-only products are typically estimated using the net present value of future resource rents. Any price change in the expected resource rents as a result of changes in expected future commodity prices or changes in the prices of the extraction costs should be recorded as revaluations. The same holds for the stranding of these assets; see paragraph 13.27.

Valuables

~~13.101~~13.106 The nature of valuables is that they are held as a store of value in the expectation that their value will increase over time. Any increase in value of an individual valuable is treated as a nominal holding gain. This may be partitioned into a neutral and a real holding gain in the standard way.

Financial assets and liabilities

~~13.102~~13.107 Because it is not always appropriate to describe financial assets and liabilities as having a price, holding gains and losses appear to be treated differently for different categories though the same basic principles apply to all categories. Other changes in the volume of financial assets and liabilities are possible, as described in section B, but are generally ignored in what follows.

~~13.103~~13.108 Except for monetary gold and SDRs, the discussion is first in terms of assets denomination in domestic currency and then of the effects when they are denominated in foreign currency.

Monetary gold and SDRs

~~13.104~~13.109 Because the price of gold is usually quoted in dollars, monetary gold is subject to nominal and real holding gains and losses because of changes in the exchange rate as well as in the price of gold itself.

~~13.105~~13.110 Since the value of the SDR is based on the market exchange rates of a basket of major~~four key~~ currencies, the value of SDRs is always subject to nominal and real holding gains and losses. From time to time, new allocations of SDRs may be made; when this occurs the allocation is recorded as a transaction.

Currency

~~13.106~~13.111 Domestic currency is not subject to any nominal holding gains or losses. It can be thought of as a fixed "quantity" of currency units (for example, one dollar) with a price that is always unity. However, although the nominal holding gains are zero, the neutral holding gains on currency are not. Under inflation, neutral holding gains are positive and so the associated real holding gains are negative and of an equal size.

Deposits and loans

~~13.107~~13.112 Deposits and loans denominated in domestic currency also do not register nominal holding gains and losses for the same reasons as currency. There may be increases in the values of a loan or a deposit during an accounting period but this must be due to transactions including the addition of interest to the previous level of principal. As with currency, deposits and loans denominated in domestic currency register real holding losses of the same magnitude as their neutral holding gains.

Debt securities

~~13.108~~13.113 Debt securities typically have market values and these market values change over time. However, not all of the changes in value are treated as holding gains and losses.

~~13.109~~13.114 A bond is a security that gives the holder the unconditional right to a fixed money income or contractually determined variable money income over a specified period of time and (except in the case of perpetual bonds) the right also to a fixed sum as repayment of principal on a specified date or dates. Bonds are usually traded on markets and the holder of a bond may change several times during the life of the bond. The issuer of such a bond may sometimes be able to repay the principal outstanding at any time by purchasing it back in advance of the date on which it matures.

~~13.110~~13.115 As explained in ~~part 4 of~~ chapter ~~17~~25, when a bond is issued at a discount, including deep discounted and zero coupon bonds, the difference between its issue price and its face or redemption value when it matures measures interest that the issuer is obliged to pay over the life of the bond. Such interest is recorded as property income payable by the issuer of the bond and receivable by the holder of the bond in addition to any coupon interest actually paid by the issuer at specified intervals over the life of the bond. In principle, the interest accruing is treated as being simultaneously reinvested in the bond by the holder of the bond. It is, therefore, recorded in the financial account as the acquisition of additional value of the existing asset. Thus the gradual increase in the market price of a bond that is attributable to the accumulation of accrued, reinvested interest reflects a growth in the principal outstanding. It is essentially a quantum or volume increase and not a price increase. It does not generate any holding gain for the holder of the bond or holding loss for the issuer of the bond. The increases in value due to the accrual of interest are recorded in the ~~distribution of primary~~earned income account and the financial account and not in the revaluation account (nor in the other changes in the volume of assets and liabilities account).

~~13.111~~13.116 The prices of fixed-rate marketable bonds also change, however, when the market rates of interest change, the prices varying inversely with the interest rate movements. The impact of a given interest rate change on the price of an individual bond is less, the closer the bond is to maturity. Changes in bond prices that are attributable to changes in market rates of interest constitute price and not quantum changes. They therefore generate nominal holding gains or losses for both the issuers and the holders of the bonds. An increase in interest rates generates a nominal holding gain for the issuer of the bond and an equal nominal holding loss for the holder of the bond, and vice versa in the case of a fall in interest rates. Whenever the interest rate changes, the market value of the bond changes; this change in value is recorded as a revaluation. Within the SNA, the interest recorded due to the fact that the redemption date is nearer is calculated on the basis of the interest rate at the issue date. Over the whole of the life of the bond, therefore, the holding gains and losses are offsetting and total interest recorded is the difference between issue price and redemption price.

~~13.112~~13.117 Prices of bonds may also change because of a change in the creditworthiness (up as well as down) of the issuer or guarantor. Such changes give rise to the same sorts of entries as changes in the interest rate. This is because the market price of the bond changes to reflect the market's view of the creditworthiness of the issuer. It does not imply that impairments to loans and deposits should be treated as revaluations. The appropriate treatment for impaired loans is discussed in paragraphs ~~13.66~~ 14.66 to ~~13.68.~~14.68.

~~13.113~~13.118 Nominal holding gains or losses may accrue on bills in the same way as for bonds. However, as bills are short-term securities with much shorter times to maturity, the holding gains generated by interest rate changes are generally much smaller than on bonds with the same face values.

Equity and investment fund shares

~~13.114~~13.119 For corporations that are foreign direct investment enterprises and investment funds, any undistributed earnings are shown as reinvested earnings in the ~~distribution of primary~~earned income account and as reinvestment of earnings in the financial account. Reinvestment of earnings increases the value of equity and investment fund shares. For listed shares and investment fund shares and units, market prices exist and changes in the value other than via reinvested earnings are treated as holding gains and losses exactly as for inventories with no storage component or valuables.

~~13.115~~13.120 For other forms of equity~~, holding gains are calculated in a manner similar to the way in which the value of the equity is calculated. For example, for a quasi-corporation~~ where the value of ~~other~~ equity is derived as the balance of assets less liabilities, all changes in the value of equity which are not due to transactions and other changes in the volume of assets and liabilities are to be recorded as holding gains ~~are~~ and losses~~calculated as the sum of holding gains on assets less the holding gains on liabilities~~. In the case that negative values of equity are zeroed out, the relevant changes in the value of equity should also be recorded as holding gains and losses.

Insurance, pension and standardized guarantee schemes

~~13.116~~13.121 When the reserves for insurance and standardized guarantee schemes are denominated in domestic currency, there are generally no nominal holding gains and losses just as there are none for currency or deposits and loans. Exceptionally, if a figure for a claim outstanding has been agreed and it has been agreed to be indexed pending payment, then there may be a nominal holding gain or loss recorded for it.

13.122 As far as defined benefit pension entitlements are concerned, increases in the value of entitlements due to the unwinding of the entitlements~~indexation~~ are recorded via reinvestment of investment income payable to the beneficiaries (similar to accrued interest) and not in the revaluation account. The entitlements may also change due to other factors, such as changes in pension entitlements related to current and past service, changes in the formula used to determine benefits, demographic assumptions about life length, etc. For the recording of these changes, either as transactions, as other changes in the volume of assets and liabilities, or as revaluations, see paragraphs 13.66 and 24.177 – 24.186.

~~13.117~~13.123 In the case of a defined benefit pension scheme, the pension fund may also have a claim on the pension manager (i.e., the sponsor of the scheme), to cover any shortfalls on the value of accumulated assets compared to pension entitlements. This claim is directly affected by holding gains on the accumulated assets of the pension fund. The impact of these holding gains have to be reflected in the revaluation of the claim between the pension fund and the pension manager.

~~13.118~~13.124 The assets the financial institutions use to meet their commitments under ~~these~~defined contribution pension schemes ~~do indeed~~ benefit from holding gains, for example investments in equity and investment funds. These holding gains directly affect the pension entitlements, and the resulting change in entitlements should also be treated as revaluations.~~, but the liabilities towards the policyholders and beneficiaries change only as a result of transactions and other changes in the volume of assets.~~

Financial derivatives and employee stock options

~~13.119~~13.125 Unless it concerns over-the-counter derivatives, ~~F~~financial derivatives have quoted prices and thus register nominal holding gains and losses, similar to ~~as for~~ listed shares and investment fund shares and units. As explained in ~~part 6 of~~ chapter ~~17~~25, employee stock options may also register nominal holding gains and losses.

Other accounts receivable or payable

~~13.120~~13.126 Other accounts receivable or payable denominated in domestic currency do not register nominal holding gains and losses. All changes in value between the start and end of the accounting period are due to transactions, ~~possibly~~ including accrued interest, and possibly other changes in the volume of assets and liabilities. As with currency, there may be real holding gains equal in magnitude to the neutral holding losses under inflation.

Assets denominated in foreign currency

~~13.121~~13.127 Residents may hold assets denominated in foreign currency just as non-residents may hold assets denominated in domestic currency. For balance sheet purposes, the value of an asset denominated in foreign currency is measured by its current value in foreign currency converted into the currency of the country in which its owner is resident at the mid-point of the bid and offer rate of the exchange rate on the balance sheet date. Nominal holding gains may therefore occur not only because the price of the asset in local currency changes but also because the exchange rate changes.

~~13.122~~13.128 Neutral holding gains are calculated in the same way as for any other type of asset by calculating what the holding gains would have been if the prices of the assets, expressed in the domestic currency, had moved in the same way as the general internal price level. Real holding gains, again expressed in the domestic currency, can then be derived residually by subtracting the neutral from the nominal gains. If, in addition to the asset being denominated in foreign currency, either the creditor or debtor is non-resident, the real holding gains (losses) of the creditor need not be equal to the real holding losses (gains) of the debtor when the general rates of inflation are different in the two countries.