
V. STOCKS, FLOWS, AND ACCOUNTING RULES

INTRODUCTION

182. This chapter covers financial *stocks* and *flows* and the *accounting rules* that together constitute major elements of an integrated and consistent system for the compilation of monetary and financial statistics. The stock and flow concepts and accounting rules set forth follow the framework of the *1993 SNA*. The framework is a consistent system that, in principle, measures each financial flow or stock identically for the parties involved, using a single set of accounting rules. The framework is also an integrated system in which changes in stocks of financial assets and liabilities fully account for all flows recorded between periods. The framework divides the recorded flows into separate components for *transactions*, *revaluations*, and *other changes in the volume of assets* (OCVA).

183. This chapter covers three broad categories of accounting rules, pertaining to (1) the *valuation* of financial assets and liabilities; (2) the *time of the recording* of transactions; and (3) the *aggregation*, *consolidation*, and *netting* of stock and flow data. The basic principle, as recommended in this manual and the *1993 SNA*, is the use of *market prices* or *fair values* for valuing financial assets and liabilities. *Market exchange rates* should be used to convert foreign-currency-denominated assets and liabilities into their domestic currency equivalents.

184. It is necessary to use special valuation methods for financial assets and liabilities that are not market traded on a regular basis. This chapter describes the methods for deriving *fair values*—approximations of market values—for nontraded assets and liabilities. Other exceptions to the market valuation principle are necessary for the valuation of loans and of shares and other equity in the compilation of the monetary statistics.

185. *Time of recording* of transactions is based on the principle of simultaneous recording by the parties to the transaction and the application of accrual accounting. Claims and obligations should be recorded as they accrue—that is, when they are created, transferred, or canceled—rather than when payments for transactions occur.

186. *Aggregation* of data is the general rule for the reporting of data underlying the monetary and financial statistics. Aggregation entails the summation of stock or flow data across all institutional units within a particular group (i.e., subsector or sector) and, for a given subsector, the summation of all stock or flow data within a particular asset or liability category. *Sectoral balance sheets*—the underlying data sets for the monetary and financial statistics—should be compiled as aggregated data.

187. *Consolidation* of data also arises in the monetary statistics described in Chapter 7, where data are presented in the form of *surveys* that cover all assets and liabilities of the financial corporations sector and its subsectors. Consolidation entails the “canceling out” of stocks and flows that arise from financial claims and corresponding obligations *between* the institutional units within the financial sector or subsector covered by a particular survey.

188. The general principle in this manual and in the *1993 SNA* is that data should be recorded and compiled on a gross basis. However, exceptions to the general rule arise from circumstances in which the compilation of data on a net basis is appropriate or is necessitated by unavailability of data on a gross basis.

189. In view of their unique characteristics and relative complexity, *financial derivatives* are discussed in an annex to this chapter.

STOCKS, FLOWS, AND ACCOUNTING RULES

FINANCIAL STOCKS AND FLOWS

190. This section deals with financial stocks and flows as defined within the general framework of the 1993 SNA. Table 5.1 illustrates the recorded stocks and flows for a category of financial assets or liabilities. The total flow during the period is divided into three components: transactions, revaluations, and OCVA.

- *Revaluations.* Financial flows arising from changes in (1) the prices of financial assets and liabilities and/or (2) the exchange rates that affect the domestic currency values of assets and liabilities denominated in foreign currency.

Table 5.1. Stocks and Flows for a Financial Asset or Liability Category	
Opening stock (beginning of period)	100
Transactions	+5
Revaluations	+1
Arising from price changes	-2
Arising from exchange rate changes	+ 3
Other changes in the volume of assets (OCVA)	-4
Closing stock (end of period)	102

191. The entries in Table 5.1 are described as follows:

- *Opening stock.* The value of the outstanding stock of a category of financial assets or liabilities at the beginning of an accounting period.
- *Transactions.* Financial flows that arise, by mutual agreement between institutional units, from the creation, liquidation, or change in ownership of financial assets or liabilities. Changes in ownership occur through the sale, transfer, or other discharge of all rights, obligations, and risks associated with a financial asset or liability.

- *OCVA.* Financial flows that arise from asset and liability changes other than those arising from transactions and revaluations. Included are write-offs of claims,²⁴ reclassification of assets, monetization or demonetization of gold, allocation or cancellation of SDRs, and other events.

- *Closing Stock.* The value of the outstanding stock of a category of financial assets or liabilities at the end of an accounting period, which equals the value of the

²⁴ Debt write-off is a unilateral cancellation of debt by the creditor and is recorded in the OCVA account. In contrast, debt forgiveness is a voluntary, mutual cancellation of a creditor's claim and a debtor's obligation, which is recorded as a transaction in the form of a capital transfer from the creditor to the debtor.

opening stock plus flows arising from transactions, revaluations, and OCVA.

192. The methodology for the compilation of monetary and financial statistics has traditionally focused on stocks and period-to-period changes in stocks. This manual, however, recommends that data be compiled on stocks and on each of the three separate flow components. Availability of these detailed flow data facilitates more thorough analysis for monetary policy and other purposes, and fosters consistency between the monetary and financial statistics and the national accounts, balance of payments, and government finance statistics, which also contain detailed flow data.

193. The OCVA account records the changes in assets and liabilities between opening and closing balance sheets that are due neither to transactions between institutional units nor to changes in value. Separate entries for the financial flows arising from OCVA should be shown for all categories of assets and liabilities included in the monetary statistics, as described in Chapter 7, and in the financial statistics as described in Chapter 8 of this manual.

194. In the *1993 SNA*, the circumstances that result in entries in the OCVA account are grouped into nine categories, most of which have several subcategories. The following are the categories and subcategories that are relevant for the financial corporations sectors in most countries and, therefore, are directly relevant to the compilation of monetary and financial statistics.

- *Economic appearance of intangible nonproduced assets.* Financial corporations may hold patents and may show assets in the form of *purchased goodwill* on their balance sheets. When an enterprise is sold at a value that exceeds its net worth, this excess of purchase price over net worth is an asset designated as purchased goodwill. Goodwill that is not evidenced by a sale/purchase is not considered an economic asset and, therefore, does not enter the monetary and financial statistics. Purchased goodwill enters the OCVA account as an appearance of an intangible nonproduced asset. On the balance sheet, purchased goodwill is classified as a

nonfinancial asset. Just as the appearance of a nonproduced asset is recorded as an OCVA, so is the disappearance through write-off, termination, or exhaustion.

- *Catastrophic losses.* The volume changes recorded as catastrophic losses in the OCVA account are the result of large-scale, discrete, and recognizable events that may destroy assets within any asset category. Such events include natural disasters, acts of war, and riots. Catastrophic losses most commonly apply to nonfinancial assets but may also apply to the loss of financial assets and, in particular, the loss of currency and other bearer-type financial assets.
- *Uncompensated seizures.* Governments or other institutional units may take possession of the assets of other institutional units without full compensation for reasons other than the nonpayment of taxes, fines, or similar levies. If the compensation for such seizures falls short of the market or fair value of the assets as shown on the balance sheet, the difference should be recorded in the OCVA account as a decrease in the assets of the institutional unit losing the assets. Foreclosures and repossession of goods by creditors are not treated as uncompensated seizures. They should be treated as transactions—i.e., disposals by debtors and acquisitions by creditors—because, by explicit or general understanding, the agreement between the debtor and creditor provided this avenue of recourse.
- *Other volume changes in nonfinancial assets not elsewhere classified.* This category covers entries in the OCVA account arising from the impact of unexpected events (other than catastrophes and uncompensated seizures) on the economic benefits to be derived from assets, especially the effects of events not anticipated when allowances were specified for the consumption of fixed

STOCKS, FLOWS, AND ACCOUNTING RULES

capital. These events include unforeseen obsolescence of fixed assets, differences between allowances included in consumption of fixed capital and actual losses, degradation of fixed assets not accounted for in consumption of fixed capital, abandonment of production facilities before being brought into economic use, exceptional losses in inventories (for example from fire damage or theft), and other events that are not transactions, that should not be attributed to holding gains or losses, and that do not fall into the other categories of events requiring entries in the OCVA account. The events include possession of assets that have lasted longer than expected, either economically or physically.

- *Other volume changes in financial assets and liabilities not elsewhere classified.* This category comprises the following events:

Allocation and cancellation of SDRs. A new allocation of SDRs by the IMF is recorded in the OCVA account, as is the cancellation of SDRs by the IMF.

Writing-off of bad debts by creditors. Recognition by a creditor that a financial claim can no longer be collected, due to bankruptcy or other factors, and the consequent removal of the claim from the balance sheet of the creditor should be accounted for here.

Counterpart of “other accounts receivable/payable” for defined benefit pension funds. For defined benefit pension plans, an entry in the OCVA account captures changes in the actuarially-determined liability that results from changes in the benefits structure—for example, changes in the benefits formula, reductions in the pensionable age, or funding for annual increases in the amount of the pensions.

Miscellaneous other volume changes in financial assets and liabilities. Entries in the OCVA account are made to explain any changes in financial assets and liabilities that

are not transactions, are not attributed to revaluations (i.e., holding gains or losses), and are not changes in classification or the result of events in the other enumerated categories.

- *Changes in classification and structure.* This category comprises the following events:

Changes in sector classification and structure. Changes in the activities, legal status, and/or organizational structure of institutional units can result in their sectoral reclassification. Reclassifying an institutional unit from one sector to another transfers its entire balance sheet.²⁵ Entries in the OCVA account can also arise from changes in structure—for example, when a corporation disappears as an independent legal entity by virtue of its being absorbed by another corporation or when a corporation is split into more than one institutional unit.²⁶

Changes in classification of assets and liabilities. Because of changes in its characteristics or in the purpose for which it is used, an asset or liability may be classified differently in the opening and closing balance sheets. For example, nonmonetary gold may become monetary gold that is used for international reserves purposes. Other examples are the reclassification of securities that have been converted to shares and other equity, under the conversion options in securities contracts, and loans that have been

²⁵For example, if a financial corporation is newly authorized to accept liabilities included in the national definition of broad money, it would be reclassified from “other financial corporations” to “other depository corporations.” Other examples of events that result in changes in sector (or subsector) classification are the privatization of public nonfinancial corporations; divestitures within an institutional unit, resulting in the creation of two or more units with separate financial accounts and operating in different sectors; and changes in the institutional units within an economy arising from changes in economic territory when countries are unified into a single nation or when one country is divided into two or more countries.

²⁶When a corporation is absorbed by one or more other corporations, all claims and liabilities between the corporation that is absorbed and those that absorbed it disappear at the level of the data reported for macroeconomic statistics. Symmetrically, when a corporation is split into more than one institutional unit, new claims and liabilities between the new corporations may appear. The disappearance and appearance of the claims and liabilities between these institutional units lead to entries to the OCVA account.

reclassified as securities other than shares, in accordance with the rule that loans that become negotiable (i.e., marketable) should be reclassified as securities other than shares.

195. It should be noted that the OCVA account is used to record changes in the *correct* classification of assets and liabilities, but not corrections of data that were misclassified in earlier periods. It is important to trace the origins of data misclassification and to correct all current and historical data on stocks and flows.

VALUATION OF FINANCIAL ASSETS AND LIABILITIES

GENERAL PRINCIPLES

196. The general recommendation in this manual is that valuations should be based on market prices or market-price equivalents of financial assets and liabilities. Valuation according to market-price equivalent is needed for valuing financial assets and liabilities that are not traded in financial markets or are traded only infrequently. For these assets and liabilities, it is necessary to estimate *fair values* that, in effect, are approximations to market prices. Methods for estimating fair values are described in paragraphs 219-224 of this chapter. Other valuation rules apply to assets in the form of loans and, in the context of the monetary statistics in Chapter 7, to liabilities in the form of shares and other equity. Descriptions of these rules for loans and shares and other equity appear later in this section.

197. Market prices are also applied to the valuation of *financial derivatives* that are market traded. However, financial derivatives for which market prices are unavailable are prevalent, and valuation of financial derivatives in general is a specialized topic. Therefore, the statistical treatment of financial derivatives is described in the annex to this chapter.

198. *Stocks* of financial assets and liabilities should be valued as if they were acquired in market transactions on the balance sheet reporting date. Many financial assets are traded in markets on a regular basis and therefore can be valued by

directly using the price quotations from these markets. If the financial markets are closed on the balance sheet date, the market prices that should be used in the valuation are those that prevailed on the closest preceding date when the markets were open.

199. The *revaluation account*, as specified in the 1993 SNA and in this manual, is used to show the holding gains or losses arising from changes in market values (or fair values) of stocks of financial assets and of outstanding liabilities. A *holding gain* occurs whenever an asset increases in value or a liability decreases in value; a *holding loss* occurs whenever an asset decreases in value or a liability increases in value.

200. A *nominal holding gain or loss* is the total change in value of a financial asset or liability resulting from a change in market price, fair value, and/or exchange rate. Nominal holding gains and losses on nonfinancial and financial assets and liabilities are included in the presentation of the monetary statistics under the heading of *valuation changes* in the sectoral balance sheets and surveys for the financial corporations sector in Chapter 7.²⁷

201. The creditor and the debtor should record *transactions* in financial assets and liabilities at the prices at which they bought and sold the assets. Transactions for which payment is to be made in the form of financial assets, goods, or services should be valued at the market prices of the items to be used in payment. Service charges, fees, commissions, taxes, and similar payments are income flows and, therefore, are excluded from the valuation of financial transactions, as well as from the valuation of stocks.

²⁷A *neutral holding gain or loss* is defined as a holding gain or loss that is in the same proportion as the change in the general price level during the holding period. A *real holding gain or loss* is defined as the amount of gain or loss after deducting the neutral holding gain or loss from the nominal gain or loss. A real holding gain occurs when the purchasing power of a financial asset increases during the holding period. Methods of estimating real holding gains and losses on nonfinancial and financial assets and liabilities are described in the 1993 SNA (paragraphs 12.63-115). All components of the monetary and financial statistics, as described in Chapters 7 and 8 of this manual, are in nominal terms. However, it is recognized that supplementary data on real holding gains and losses are useful for various types of analysis.

STOCKS, FLOWS, AND ACCOUNTING RULES

202. In the reported data in some countries, the valuation of financial assets and liabilities may be based on commercial, supervisory, tax, or other accounting standards that do not fully reflect the market prices of the assets and liabilities. In such cases, the data should be adjusted to reflect, as closely as possible, the market value of the financial assets and liabilities.

INSTRUMENTS DENOMINATED IN FOREIGN CURRENCY

203. The standard unit of account for monetary and financial statistics is the national currency unit. Therefore, it is necessary to convert all foreign-currency-denominated stocks and flows into national currency amounts. Stocks and flows denominated in foreign currency should be converted to national currency values at the market exchange rate prevailing at the moment they are entered in the accounts, that is, the moment when the transaction or other flow occurs, or the point in time to which the balance sheet applies. The midpoint between the buying and selling rate of exchange should be used so that any service charge is excluded.

204. Institutional units sometimes apply exchange rates that differ from market rates in converting stocks and flows into national currency units. The conversion to national currency units is sometimes based on a single *official exchange rate* or on an exchange rate from an *official multiple exchange rate system*.²⁸ The data should be adjusted to a market rate basis, to the extent possible.

LOANS

205. Loans are held from the time when they are contracted until the time when they mature or are liquidated prior to maturity—for example, because of early repayment or default by the debtor. The value of a domestic currency loan should be the

amount of the creditor's outstanding claim (equal to the debtor's obligation), which comprises the outstanding principal amount plus any accrued interest (i.e., interest earned but not yet due for payment). Such valuation is herein referred to as the *book value* of a loan. Loans denominated in foreign currency should be recorded at their book values when expressed in the foreign currency and, for conversion to domestic currency units, should be valued on the basis of the market exchange rates that prevailed on the transaction or balance sheet date.

206. This manual recommends that the entire loan portfolio be valued at book value in presenting the loan data in the sectoral balance sheets described in Chapter 7. In particular, the loan valuation is not adjusted for expected losses. The value of a loan portfolio should be adjusted downward only when (1) loans are actually written off as uncollectible or (2) when the outstanding amount of the loan has been reduced through a formal debt reorganization. This statistical treatment reflects common accounting practice whereby expected loan losses are taken into account through the use of provisions for loan losses and loan losses are treated as an expense in calculating the profits and losses of lending institutions.

207. Law or regulation may require the provision of data on the basis of the expected realizable value of loans—defined as the book value of the loans *less* the expected loan losses arising from borrowers defaulting on financial obligations under the loan contracts. Even if not required by law or regulation, data on the expected realizable value of the loan portfolio are useful—in particular, for supervisory purposes at the macroeconomic level. Therefore, this manual recommends that data on expected loan losses (disaggregated by debtor sector) be shown as memorandum items accompanying the sectoral balance sheets described in Chapter 7. These data can be used to obtain the expected realizable value of loans, by deducting the expected loan losses (whether or not covered by loan loss provisions) from the book values of the loans.

²⁸*Market exchange rate* is defined as an exchange rate determined by market forces, whereas an *official exchange rate* is an exchange rate determined on an administered basis by the national authorities. Official exchange rates may be administered so as to keep them closely aligned with market exchange rates or, at the other extreme, may differ substantially from market exchange rates for extended periods of time. Official multiple exchange rate systems are schedules of official exchange rates, used to apply separate exchange rates to various categories of transactions and/or transactors.

208. Loans that have become negotiable (i.e., marketable) in secondary markets should be reclassified under securities other than shares, and should be valued on the basis of market prices or fair values in the same manner as other types of securities other than shares.

DEBT REORGANIZATIONS

209. *Debt rescheduling* refers to the formal deferment of debt service payments (i.e., interest and/or principal payments) and the creation of a new repayment schedule, usually including a new maturity, for an existing debt obligation. Rescheduling should not affect the valuation of a loan that has been properly valued, because the outstanding amount (i.e., book value) of the loan is the same before and after rescheduling; only the schedule for future interest and principal payments has been affected. However, the market value or fair value of a security would usually be affected by rescheduling, because lengthening of maturity and postponement of debt servicing would be expected to reduce the discounted present value of the security.

210. *Debt refinancing* refers to the conversion of a debt obligation—a loan or a security other than shares—into a new debt instrument. Holding gain or loss from the difference between the values of the original and of the new debt instruments should be recorded in the revaluation account.

211. *Debt assumption* is a special form of debt refinancing, involving three parties—the creditor, the original debtor, and a new debtor who assumes the debt obligation. A debt assumption involves two simultaneous transactions; the first transaction cancels the original debtor's obligation, and the second transaction creates a new debt contract between the creditor and the new debtor, or assumer. The first transaction is classified as a capital transfer (as in the case of debt forgiveness), and the second transaction involves the creditor's acquisition of the new debt instrument issued by the assumer. Any write-down of asset value by the creditor is recorded in the revaluation account.

212. *Debt swaps*²⁹ refer to the exchange of debt, in the form of a loan or, more typically, of securities other than shares, for a new debt contract (i.e., *debt-debt swap*) or the exchange of debt for equity shares (i.e., *debt-equity swap*). Debt swaps often call for writing down, or discounting, the value of the original debt instrument before the conversion to new debt or equity. Any holding loss from writing down the value of the original debt is recorded in the revaluation account.

SHARES AND OTHER EQUITY

213. For the financial statistics described in Chapter 8, the values of shares and other equity on both sides of the balance sheet are based on market prices or fair values. This treatment is in accordance with the valuation methods in the *1993 SNA*. For the monetary statistics described in Chapter 7, asset holdings in the form of shares and other equity are valued at market prices or fair values. However, most components of liabilities in the form of shares and other equity should be valued at book value for the monetary statistics.

214. For monetary and other policy purposes, it is highly desirable to show, in the monetary statistics, data on the separate components (as described in Chapter 4) of shares and other equity on the liability side of the balance sheets of financial corporations. These data are particularly important for analyzing the soundness of financial systems. Even though shares and other equity at the total level can be valued at market prices or fair values, this approach is not possible for valuing all individual components, given that no nonarbitrary method exists for market valuation of funds contributed by owners, retained earnings, and general and special reserves. Therefore, this manual recommends that the following valuation

²⁹A debt swap should be distinguished from the interest rate and currency swap contracts that are financial derivatives. These derivative contracts involve the parties' swapping of interest and, in some cases, principal payments on underlying financial instruments, whereas the debt swaps covered in this section involve the swapping of the underlying instruments themselves. A debt-debt swap is distinguished from a debt assumption; a debt-debt swap involves two parties, whereas a debt assumption also involves a third party—the assumer of the debt.

STOCKS, FLOWS, AND ACCOUNTING RULES

principles be used for the components of shares and other equity on the liability side of the sectoral balance sheets described in Chapter 7:

- *Funds contributed by owners* should be book valued—that is, valued as the nominal amount of the proceeds from the initial and any subsequent issuances of ownership shares.
- *Retained earnings* should be valued as the nominal amount of earnings that have been retained.
- *General and special reserves* should be valued as the nominal amount of such reserves.
- *SDR allocations* should be valued on the basis of the market exchange rates as of the transaction or balance sheet date.
- *Valuation adjustment* is market valued by definition, given that the valuation adjustment is specifically designed as the net counterpart to changes in the market or fair values of assets and liabilities on the balance sheet.³⁰

INDEXED INTEREST AND PRINCIPAL

215. Interest and principal payments for some deposits, loans, and securities are indexed to changes in prices. The indexation links the amount of interest and/or principal to changes in an index of the general price level, the price of a specific commodity, share prices, or exchange rates.

216. This manual and the *1993 SNA* recommend treating all changes in the amounts of interest and principal arising from indexation as additional interest. It recommends treating amounts arising from indexation of the principal as interest that is reinvested in the financial asset. That is, the indexation of principal results in a property income flow accompanied by a *financial transaction*—in other words, the reinvestment of

the income flow—that augments the outstanding principal. In particular, the increase in principal arising from the indexation should be treated as a transaction rather than as a revaluation.

GOLD

217. Monetary gold should be classified as a financial asset, and nonmonetary gold should be classified as a nonfinancial asset. Both monetary and nonmonetary gold should be valued on the basis of the market price of gold, and the revaluation account should reflect changes in the value of monetary and nonmonetary gold.

218. Valuation of gold at prices other than market prices is the national practice in some countries. Supplementary data on the physical quantity of monetary gold should be provided to the compilers of monetary statistics so they can determine the gold prices used in the national valuation and can adjust the valuation, if necessary, to a market-price basis.

FAIR VALUES

219. The *fair value* of a financial asset or liability refers to the value that approximates the value that would arise from a market transaction between unrelated parties. Fair values can be used in most situations in which market-price data are unavailable.

220. Two general methods for establishing fair values involve use of either:

- Market prices of financial assets and liabilities that are market traded but otherwise similar to the nontraded financial assets and liabilities that are being fair valued; or
- Discounted present values of future cash flows from nontraded financial assets and liabilities.

Other methods are used to establish fair values for some types of financial derivatives—particularly option-type contracts—when market

³⁰Changes in the value of SDR allocations are included in the revaluation account.

price data are unavailable. The annex on financial derivatives that follows this chapter describes an estimation of fair values based on option pricing models.

221. Directly basing fair value on the market price of a similar, but market-traded, financial instrument can establish fair values for some nontraded financial assets and liabilities. For example, the fair-value price of a nontraded bond with five-year remaining maturity might be given by the market price of a publicly traded five-year bond having comparable default risk. In other cases, it may be appropriate to use the market price of a similar financial instrument, but with some adjustment in the fair value to account for differences in liquidity and/or risk level between the traded and nontraded instruments. For example, the fair value of unquoted equity shares may be based on the market price of equity shares in some other corporation that has traded shares. However, the fair value may need to be adjusted for differences in scale of operations, number of outstanding shares, and other factors that are perceived as differentiating the values of the nontraded and traded shares.

222. In some cases, the financial asset or liability may possess some characteristics of each of several other financial instruments, even though its characteristics are not generally similar to any one of these instruments. In such cases, information on the market prices and other characteristics (for example, type of instrument, issuing sector, maturity, credit rating, etc.) of the traded instruments can be used in estimating the fair value of the nontraded instrument.

223. The second general method is to value financial assets and liabilities by *basing fair values on the present, or time discounted, value of future cash flows*. This is a well-established approach to valuation in both theory and practice. The fair value of a financial asset or liability is calculated as the sum of the present values of all future cash flows, as shown in the following equation:

$$\text{Fair value} = \frac{\sum_{t=1}^n (\text{Cash flow})_t}{(1+i)^t},$$

where $(\text{Cash flow})_t$ denotes the cash flow in a future period (t), n denotes the number of future periods for which cash flows are expected, and i denotes the discount rate that is applied to discount the future cash flow in period t .³¹

224. The method is relatively easy to apply in valuing any financial asset or liability if (1) the future cash flows are known with certainty or can be estimated and (2) a discount rate or series of discount rates can be estimated. Market interest rates, current or expected, are often used as the discount rates, based on the assumption that these market interest rates are most representative of the cost of acquiring funds in the financial markets.

TIME OF RECORDING

SIMULTANEOUS RECORDING OF TRANSACTIONS

225. This manual and the *1993 SNA* recommend recording transactions at the time of the change in ownership of a financial asset (i.e., when all rights, obligations, and risks are discharged). Therefore, in principle, the two parties to a transaction should record it simultaneously.

226. In practice, it is not always possible to determine the exact time when the ownership has changed, leading the parties to record the transaction at different times. In particular, differences may arise from delays in mail delivery or differences in the time zones where the parties operate, as well as from differences in the time-of-recording conventions of the parties. Adjustments may be needed so that the same transaction date is applied to the data for both parties.

ACCRUAL ACCOUNTING

227. Accrued interest on deposits, loans, and securities other than shares should be incorporated into the outstanding amount of the

³¹A single discount rate, i , is usually used to discount the cash flow in all future periods. In some circumstances, using different discount rates in the various future periods may be warranted.

STOCKS, FLOWS, AND ACCOUNTING RULES

financial asset or liability, rather than being treated as part of other accounts receivable/payable.

228. For some financial instruments, the debtor does not make any payments to the creditor until the financial instrument matures, at which time a single payment discharges the debtor's liability; the payment covers the amount of funds originally provided by the creditor and the interest accumulated over the entire life of the financial instrument. The interest accruing in each period prior to maturity should be recorded as a financial transaction that represents a further acquisition of the financial asset by the creditor and an equal incurrence of a liability by the debtor.

229. Bills and similar short-term securities are issued on a discount basis—that is, at values below the face, or redemption, values that incorporate all interest payments and principal repayment for the securities. The amount recorded for such a security increases over time to reflect the interest accruing as it approaches maturity. The increase in amount is treated as a transaction that augments the principal, rather than as a price change that would constitute a holding gain.

230. Bonds and debentures are long-term securities that give the holder the unconditional right to (1) fixed or contractually determined coupon payments over the life of the security and/or (2) a sum that is due at maturity. For many bonds, both types of cash flows apply. For zero coupon bonds, however, the sum due at maturity constitutes the entire interest payment and principal repayment, as in the case of short-term securities issued on a discount basis. For deep-discount bonds, the amount of coupon payment in each period is relatively small, and the sum due at maturity includes most of the interest. A bond not issued as a zero coupon or deep-discount instrument may be issued at a value below the face value (i.e., at a discount) or at a value above the redemption value (i.e., at a premium). Similarly, bonds are traded in the secondary market at discounts or premiums that are dependent on the extent to which market interest rates have risen or declined, respectively, in the period since the bonds were issued.

231. One method for calculating the amount of accrued interest is relatively easy to apply, especially in the case of nontraded securities. Let L denote the issue price of the security, representing the amount of funds that the purchaser (creditor) provides to the issuer (debtor) and measuring the original value of the liability incurred by the issuer. Let F denote the face value of the security, representing the sum paid to the creditor when it matures. The difference, $F - L$, is the discount on the security that represents interest accruing over the life of the security. For securities sold on a discount basis, $F - L$ represents the total accrued interest to be distributed equally over the periods prior to maturity. For securities that include coupon payments, the accrued interest comprises the part of the discount (i.e., $F - L$) that has been apportioned to the period plus the accrued portion of the next coupon payment.³² This method for calculating the amount of accrued interest is called the *debtor approach*, but it can be applied relatively easily by both the debtor and creditor in recording the accrued interest for a nontraded security.

232. Calculation of accrued interest for traded securities is less straightforward, and a consensus has yet to be reached on the appropriate international guidelines in this area. One method is to apply the debtor approach, in the same manner as described above. However, as described below, application of the debtor approach may be difficult for holders of securities purchased in the secondary market. An alternative method—called the *creditor approach*—is based on the calculation of accrued interest from the perspective of a party who has purchased securities in the secondary market.

Let P denote the price paid for the securities in the secondary market. P (rather than L as described above) represents the amount of funds provided from the secondary market purchaser's

³²For securities sold for more than face value, the premium ($L - F$) would be apportioned—in effect, as “negative accrued interest”—over the remaining periods to maturity.

perspective, and $F - P$ is viewed as the discount that is to be apportioned as accrued interest.

233. For securities that are traded on a regular basis, the market price of the securities may change in each period, and, therefore, the amount for the discount ($F - P$) to be apportioned as accrued interest may change in each period. If the creditor approach were to be applied by both the debtor and creditor, both parties would need to obtain market quotations for the security prices in each period for calculating the discount ($F - P$) and apportioning it to accrued interest.

234. A major criticism of the debtor approach to the calculation of accrued interest is that it uses historical cost concepts rather than market prices, which reflect current opportunity costs. Supporters of the debtor approach, however, argue that interest should be viewed as a historical concept, based on the terms of the agreement at the time of the security issuance, rather than being viewed as the current market return, or yield, on the security. In particular, the structure of the 1993 SNA does not allow changes in value that arise from market price changes to be incorporated into transactions (i.e., recordings of accrued interest), as implied by the creditor approach.

235. Practical considerations are also important. The secondary-market purchasers' lack of information on the amounts of funds provided to the debtors is an obstacle to the application of the debtor approach by such purchasers. It should be emphasized, however, that the debtor and creditor approaches converge as the changes in market price during the life of a security become smaller. In the absence of major shifts in market interest rates and security prices, application of the debtor and the creditor approach, respectively, will lead to relatively small differences in the amounts of accrued interest recorded by the two parties. However, the differences may be pronounced when market interest rates and security prices are subject to large movements.

236. After consensus has been reached, this manual will be updated to incorporate the international guidelines agreed upon for the calculation and recording of accrued interest on securities.

237. It should be noted that the valuation and recording of securities acquisitions and dispositions and the stock data for securities do not depend on the method used for the calculation and recording of accrued interest. Acquisitions and disposals and the stock data for securities other than shares are recorded at market prices or fair values. The treatment of accrued interest only affects the extent to which financial flows are allocated to accrued interest (i.e., to transactions) and to holding gains or losses (i.e., to changes in values).

238. An *interest arrear*—that is, interest that is overdue for payment—is already included in the relevant asset or liability category in the sectoral balance sheet described in Chapter 7, if the interest has already been recorded on an accrual basis. In other words, the interest shifts from being an accrual to an arrear at the time that it changes from an amount earned but not yet due (i.e., accrued) to an amount overdue (i.e., in arrears).

239. Data on accrued interest on loans and interest arrears on loans should be shown as memorandum items accompanying the sectoral balance sheets described in Chapter 7. Many countries mandate that scheduled interest payments that have been in arrears for a specified period—for example, 60 days or longer—must be excluded from the values of the loan portfolios of lending institutions. Even if not mandated by law or regulation, data on interest arrears on loans are useful for supervisory purposes and macroeconomic analysis. The memorandum items accompanying the sectoral balance sheets in Chapter 7 include separate categories for interest arrears on domestic loans by sector and for interest arrears on loans to nonresidents. These data can be used to calculate the value of loans, excluding interest arrears, for each sectoral category of debtor.

AGGREGATION, CONSOLIDATION, AND NETTING

AGGREGATION

240. *Aggregation* refers to the summing of stock or flow data across all institutional units within a

STOCKS, FLOWS, AND ACCOUNTING RULES

sector or subsector, or all assets or liabilities within a particular category. Aggregation of data across the institutional units within a sector or subsector preserves the data on claims and liabilities between the units in that sector or subsector. For example, the sectoral balance sheet for other depository corporations, as described in Chapter 7, shows separate categories of data for other depository corporations' claims on and liabilities to each other, as well as categories for their claims on and liabilities to other sectors and subsectors.

241. For sectors and subsectors, the data on financial assets and liabilities are aggregated into major categories—for example, loans classified by debtor sector and deposits classified by creditor sector. Further aggregation is used to combine major categories of financial assets or liabilities, for example when the major categories of monetary assets are combined to form the monetary aggregates or when major categories of claims on various sectors are added together to compile credit aggregates.

CONSOLIDATION

242. *Consolidation* refers to the elimination of stocks and flows that occur between institutional units when the latter are grouped. For individual institutional units, financial flows and stock positions between institutional units, but not within an institutional unit, should be reported for the monetary and financial statistics. In particular, an institutional unit consisting of a headquarters office and branch offices should report stock and flow data consolidated across all offices of the institutional unit.

243. For sectors and subsectors, flows between constituent units should not be consolidated, as a matter of principle, at the elemental level of data reporting and compilation. Therefore, the sectoral balance sheets for the subsectors of the financial corporations sector, in Chapter 7, are based on aggregated rather than consolidated data. However, for analytical purposes, the data in the sectoral balance sheets are consolidated to obtain the surveys of financial corporation subsectors and the *FCS*, as shown in Chapter 7.

244. For example, the *DCS* in Chapter 7 is obtained by canceling out all financial flows and outstanding claims and liabilities between all depository corporations, while preserving the presentation of data on all stocks and flows that are claims on and liabilities to (1) financial corporations subsectors other than the depository corporations subsector, (2) other domestic sectors, and (3) nonresidents. The *DCS* is compiled from the data in the *CBS* and the *ODCS*, which are compiled from the sectoral balance sheets for the central bank and the other depository corporations, respectively. To facilitate data consolidation at the survey level, the sectoral balance sheets and surveys underlying the *DCS* must contain comprehensive data on all financial flows between depository corporations and the financial assets and liabilities that are outstanding between them.

NETTING

245. The general principle in this manual and the *1993 SNA* is that data should be collected and compiled on a gross basis. In particular, claims on a particular transactor or group of transactors should not be netted against the liabilities to that transactor or group. For example, a depository corporation might have an outstanding loan to a customer who is also one of its depositors. The financial corporation's asset (i.e., the loan claim) should not be netted against the liability (i.e., the deposit of the borrower).

246. However, netting in the sense of recording transactions on a purchases-*less*-sales basis (i.e., net acquisition of a specific category of financial assets or liabilities) should be used. For example, deposit transactions in a particular category should be defined as the amount of new deposits *less* withdrawals during the period. Similarly, securities transactions are defined as the amount of securities purchased *less* the amount redeemed or sold, loan transactions are defined as the amount of new loans *less* loans repayments, and so forth.³³

³³In this context, the amount of "securities purchased" and "loans extended" includes accrued interest and principal accretion that results from indexation.

247. In exceptional circumstances, it may be necessary to compile and present data on a net basis, simply because the data are not available on a gross basis. The need to resort to such netting is expected to be relatively rare for most categories of assets and liabilities in the financial corporations sectors of most countries.

248. It is important to distinguish between compilation and presentation of data on a net basis. Some categories of data in the surveys described in Chapter 7 are presented on a net basis, because of the analytical usefulness of the data in such form. The general principle for such presentation is that, whenever the data are

presented on a net basis, the underlying data on a gross basis should also be shown. For example, the *DCS* in Chapter 7 shows stock and flow data for net foreign assets and net claims on a central government. However, it also shows the stock and flow data for the separate asset and liability components that are being netted. The *DCS* shows “claims on nonresidents” and “less: liabilities to nonresidents” as the separate components of net foreign assets. Similarly, it shows “claims on central government” and “less: liabilities to central government” as separate components of net claims on the central government.

ANNEX 5.1. STATISTICAL TREATMENT OF FINANCIAL DERIVATIVES³⁴

Concept and Coverage

249. A financial derivative contract is a *financial instrument that is linked to another specific financial instrument or indicator or commodity and through which specific financial risks (such as interest rate risk, foreign exchange risk, equity and commodity price risks, credit risk, etc.) can, in their own right, be traded in financial markets.* Transactions in financial derivatives are treated as separate transactions rather than as integral parts of the values of the underlying transactions to which they are linked. The value of a financial derivative comes from the price of an underlying item such as an asset or index. No principal amount that must be repaid is advanced, and no investment income accrues. Financial derivatives are used for a number of purposes—risk management, hedging, arbitrage between markets, and speculation, for example.

250. Financial derivatives enable parties to trade specific financial risks to other entities that are more willing, or better suited, to take or manage these risks and that typically, but not always, do so without trading in primary assets or commodities. The risk embodied in a derivative contract can be traded either by trading the contract itself, as with options, or by creating a new contract embodying risk characteristics that match, in a countervailing manner, those of the existing contract. The latter practice, which is termed *offsetability*,³⁵ occurs in forward markets. *Offsetability* means that it is often possible to eliminate the risk associated with a derivative by creating a new but “reverse” contract having characteristics that countervail the risk of the first derivative. Buying the new derivative is the

functional equivalent of selling the first derivative, because the result is the elimination of risk. The ability to countervail the risk in the market is therefore considered the equivalent of *tradability* in demonstrating value. The outlay that would be required to replace the existing derivative contract represents its value; actual offsetting is not required to demonstrate value.

251. There are two broad types of financial derivatives. In a *forward contract*, which is unconditional, *two counterparties agree to exchange a specified quantity of an underlying item (real or financial) at an agreed-upon price (the strike price) on a specified date.* In an *option contract*, *the purchaser acquires from the seller a right to buy or sell (depending on whether the option is a call or a put) a specified underlying item at a strike price on or before a specified date.* Unlike debt instruments, financial derivatives do not accrue investment income; nor are principal amounts advanced that must be repaid.

252. The value of a financial derivative comes from the price of the underlying item (the *reference price*). Because a future reference price is not known beforehand, the value of a financial derivative at maturity can only be anticipated or estimated. A reference price may be related to a commodity, a financial instrument, an interest rate, an exchange rate, another derivative, a spread between two prices, or an index or basket of prices. An observable reference price for the underlying item is essential for calculating the value of any financial derivative. If there is no observable prevailing market price for the underlying item, it cannot be regarded as a financial asset. Transactions in financial derivatives are treated as separate transactions rather than as integral parts of the values of the underlying transactions to which they are linked. Embedded derivatives, however, are not identified and valued

³⁴This annex draws on *Financial Derivatives—A Supplement to the Fifth Edition (1993, of the Balance of Payments Manual (IMF, Washington, DC, 2000))*.

³⁵*Offsetability* should not be confused with an *offset*, which is the legal right of a debtor to net its claims against the same counterparty. It is recommended that positions be recorded on a gross basis whenever possible.

separately from primary instruments.

253. Financial derivative contracts are usually settled by net payments of cash. Exchange-traded contracts, such as commodity futures, are often settled before maturity. Cash settlement is a logical consequence of the use of financial derivatives to trade risks independently of the ownership of underlying items. However, some financial derivative contracts, particularly those involving foreign currency, are settled by deliveries of the underlying items.

254. For monetary and financial statistics purposes, the following types of financial instruments are not financial derivatives:

- *A fixed-price contract for goods and services* is not a financial derivative unless the contract is standardized so that the market risk therein can be traded in financial markets in its own right.
- *Insurance* is not a financial derivative. Insurance contracts provide individual institutional units with financial protection against the consequences of the occurrence of specified events. (In many instances, the value of this financial protection cannot be expressed in terms of market prices.) Insurance is a form of financial intermediation through which funds are collected from policyholders and invested in financial or other assets. These assets are held as technical reserves to meet future claims arising from the occurrence of events specified in insurance policies. That is, insurance is used to manage event risk primarily by the pooling, not the trading, of risk.
- *Contingencies*, such as guarantees and letters of credit, are not financial derivatives. The principal characteristic of a contingency is that one or more conditions must be fulfilled before a financial transaction takes place. Contingencies are typically not instruments that facilitate the trading of specific financial risks.

- *An embedded derivative (a derivative feature that is inserted in a standard financial instrument and is inseparable from the instrument)* is not considered a financial derivative for monetary and financial statistics purposes. If a primary instrument such as a security or loan contains an embedded derivative, the instrument is valued and classified according to its primary characteristics—even though the value of that security or loan may well differ from the values of comparable securities and loans because of the embedded derivative. Examples are bonds that are convertible into shares and securities with options for repayment of principal in currencies that differ from those in which the securities were issued.

255. In addition, timing delays that arise in the normal course of business and that may entail exposure to price movements do not, for monetary and financial statistics purposes, give rise to transactions and positions in financial derivatives. Timing delays include normal settlement periods for spot transactions in financial markets.

Forwards

256. In a *forward contract*, the counterparties agree to exchange, on a specified date, a specified quantity of an underlying item (real or financial) at an agreed-upon contract price (the *strike price*). This class of financial derivatives includes *futures* and *swaps*. Futures are *forward contracts traded on organized exchanges*. Futures and other forward contracts are typically, but not always, settled by payments of cash or provision of other financial instruments rather than by actual deliveries of underlying items. Futures are valued and traded separately from underlying items. If a forward contract is a *swap contract*, the counterparties exchange, in accordance with prearranged terms, cash flows based on the reference prices of the underlying items. Forward rate agreements and forward foreign exchange contracts are common types of forward contracts. Interest rate and cross-currency interest rate swaps are common types

STATISTICAL TREATMENT OF FINANCIAL DERIVATIVES

of swap contracts. (See paragraphs 263 and 264 for further discussion.)

257. At the inception of a forward contract, the parties involved exchange risk exposures of equal market value. Both parties are potential debtors, but a debtor/creditor relationship can be established only after the contract goes into effect. Thus, at inception, a contract normally has zero value. However, as the price of the underlying item changes during the life of the forward contract, the market value of each party's risk exposure will differ from the market value of zero at the inception of the contract. When a change in the price of the underlying item occurs, an asset (creditor) position is created for one party, and a liability (debtor) position is created for the other. The debtor/creditor relationship may change, in both magnitude and direction, during the life of a forward contract.

Options

258. *The purchaser of an option contract pays a premium to the writer of the option. In return, the buyer acquires the right but not the obligation to buy (call option) or sell (put option) a specified underlying item (real or financial) at an agreed-upon contract price (the strike price) on or before a specified date. A major difference between forward and option contracts is that either party to a forward contract is a potential debtor, whereas the buyer of an option acquires an asset, and the option writer incurs a liability. However, an option may expire without worth; it is exercised only if settling the contract is advantageous to the buyer. The option buyer may make gains of unlimited size, and the option writer may experience losses of unlimited size.*

259. Options are written on a wide variety of underlying items—such as equities, commodities, currencies, and interest rates (including caps, collars, and floors).³⁶ Options

³⁶A cap imposes an upper limit; a floor sets a lower limit; and a collar maintains upper and lower bounds on floating-rate interest payments or receipts.

are also written on futures, swaps (known as *swaptions*), caps (known as *captions*), and other instruments.

260. In organized markets, option contracts are usually settled in cash, but some types of option contracts are normally settled by purchases of underlying assets. For instance, a warrant is a financial contract that gives the holder the right to buy, under specified terms, a certain number or amount of the underlying asset (such as equity shares). If a warrant is exercised, the underlying asset is usually delivered. Warrants can be traded separately from the underlying assets to which they are linked.

RECORDING OF FINANCIAL DERIVATIVE TRANSACTIONS AND POSITIONS

261. The statistical treatment of financial derivatives in monetary and financial statistics requires compilers and statisticians to

- recognize the exchange of claims and obligations at the inception of a derivative contract as a true financial transaction creating asset and liability positions that normally have, at inception, zero value if the instrument is a forward and value equal to the premium if the instrument is an option;
- treat any changes in the values of derivatives as holding gains or losses;
- record secondary market transactions in marketable derivatives, such as options, as financial transactions;
- record any payments made at settlement as transactions in financial derivative assets or liabilities (that is, no income arises from settlements of financial derivatives);
- record, in the sectoral balance sheets, outstanding values of financial derivatives at market prices.

Valuation of Positions

262. A key characteristic of most derivative contracts is that the counterparties make commitments to transact, in the future and at agreed-upon prices, in underlying items. The present value (or market price) of a financial derivative is derived from the difference between the agreed-upon contract price of an underlying item and the prevailing market price (or the market price expected to prevail), appropriately discounted, of that item. For options, whether they are traded on an exchange or not, the prices are directly observable, because option purchasers acquire assets (the rights to buy or sell specified underlying items), and the prices of those assets must be established. The price of an option depends on the potential price volatility of the underlying instrument, the time to maturity, interest rates, and the difference between the strike price and the market price of the underlying item. The value of a swap contract based on a notional principal amount is derived from the difference, appropriately discounted, between expected gross receipts and gross payments.

263. Financial derivatives are valued at market prices prevailing on balance sheet recording dates. Price changes occurring between recording dates are classified as revaluation gains or losses. If market price data are unavailable, fair value methods (such as option models or discounted present values) may be used to value derivatives.

Payments at Inception

264. The purchaser of an option pays a premium to the seller. The buyer records the full price of the premium as the acquisition of a financial asset, and the seller records it as the incurrence of a liability. Sometimes a premium is paid after the inception of a derivative contract. Then the option purchaser records the value of the premium payment as an asset that was financed by a loan from the option writer at the time the derivative was purchased.

265. The creation of a forward contract does not normally require the recording of a transaction

in a financial derivative, because risk exposures of equal value are usually being exchanged. That is, there is zero exposure and zero value for both sides.

266. Commissions and fees paid—at inception or during the lives of derivatives—to banks, brokers, and dealers are classified as payments for services. These payments are for services provided within current periods and are independent of asset and liability relationships created by the derivatives.

Sales of Derivatives in Secondary Markets

267. Sales of derivatives in secondary markets—whether the markets are exchanges or over-the-counter—are valued at market prices and recorded in monetary and financial statistics as transactions in financial derivatives.

Settlement Payments

268. *Net settlement payments are financial transactions that are similar to transactions at the maturities of other financial instruments. At settlement, either a cash payment is made, or an underlying item is delivered.*

- When a financial derivative is settled in cash, a transaction equal to the cash value of the settlement is recorded for the derivative. No transaction in the underlying item is recorded. In most instances, when a cash settlement payment is received, a reduction in a financial derivative asset is recorded. When a cash settlement payment is made, a reduction of a financial derivative liability is recorded. However, in some circumstances, this practice does not hold. When a contract (such as an interest rate swap) calls for ongoing settlement and a cash settlement is received, there is an increase in a financial derivative liability if, at the time of the settlement payment, the contract is in a liability position. The reverse also applies; that is, when a contract calls for ongoing settlement, a cash payment is recorded as an increase in an asset if, at the time of the settlement, the contract is in an asset

STATISTICAL TREATMENT OF FINANCIAL DERIVATIVES

position. If compilers are unable to implement this approach because of market practice, it is recommended that all cash settlement receipts be recorded as reductions in financial assets and all cash settlement payments be recorded as decreases in liabilities.

- When an underlying instrument is delivered, two transactions occur, and both are recorded. The transaction in the underlying item is recorded at the market price prevailing on the day of the transaction. The transaction in the derivative is recorded as the difference, multiplied by the quantity, between the prevailing market price for the underlying item and the strike price specified in the derivative contract.
- When more than one contract is settled—in cash, at the same time, and with the same counterparty—some of the contracts being settled are in asset positions and some are in liability positions. In this situation, it is recommended that the transactions be recorded on a *gross basis*; that is, the transactions in assets are recorded separately from those in liabilities. Recording the transactions on a gross basis is preferred to recording them on a *net basis*; that is, after the sum of the liability flows subtracted from the sum of the asset flows, the result is recorded as a single amount.³⁷ However, for practical reasons, there may be no alternative to net recording.

MARGINS

269. Margins are payments of cash or deposits of collateral that cover actual or potential obligations incurred through financial derivatives—especially futures or exchange-traded options. The required provision of margin

reflects market concern over counterparty risk and is standard in financial derivative markets.

270. *Repayable margin* consists of *cash or other collateral deposited to protect a counterparty against default risk*. Ownership of the margin remains with the unit that deposited it. Although its use may be restricted, a margin is classified as *repayable* if the depositor retains the risks and rewards of ownership—such as the receipt of income or exposure to holding gains and losses. At settlement, a repayable margin (or the amount of repayable margin in excess of any liability owed on the derivative) is returned to the depositor. In organized markets, repayable margin is sometimes known as *initial margin*.

271. Repayable margin payments of cash are transactions in *deposits*, not transactions in financial derivatives. A depositor has a claim on an exchange, brokerage, or other institution holding the deposit. Some countries may prefer to classify repayable margin deposits within *other accounts receivable/payable* in order to reserve the term *deposits* for monetary aggregates. When a repayable margin deposit is made in a noncash asset (such as securities), no transaction is recorded, because no change in ownership has occurred. The entity (the issuer of the security) on which the depositor has a claim is unchanged.

272. The payment of *nonrepayable margin* is a transaction in a derivative; the payment is made to reduce a financial liability created through a derivative. In organized exchanges, nonrepayable margin (sometimes known as *variation margin*) is paid daily to meet liabilities recorded as a consequence of the daily marking of derivatives to market value. The entity that pays nonrepayable margin no longer retains ownership of the margin and relinquishes the right to the risks and rewards of ownership. A payment of nonrepayable margin is recorded as a reduction in a financial derivative liability; the contra-entry is a reduction (probably in currency and deposits) in a financial asset. The receipt of nonrepayable margin is recorded as a reduction in a financial derivative asset; the contra-entry is

³⁷However, the net basis is recommended for transactions in financial derivatives classified as reserve assets.

an increase (probably in currency and deposits) in a financial asset.

273. Arrangements for margining can be complex, and procedures differ among countries. In some countries, repayable and nonrepayable margins are recorded in a single account, and it may be difficult to distinguish between the two types. The actual institutional arrangements (such as the identities of units making payments and types of instruments used) must be reviewed. The key test is whether the margin is repayable or whether payment of the margin represents an effective transfer of ownership between counterparties to the financial derivative contract.

TREATMENT OF SELECTED FINANCIAL DERIVATIVES

Specific Interest Rate Contracts

274. An *interest rate swap* contract consists of a contract to exchange, in one currency and during a specified period of time, cash flows related to interest payments or receipts on a notional amount of principal that is never exchanged. Such swaps are often settled through net cash payments from one of the counterparties to another. A *forward rate agreement* (FRA) is a contract in which the counterparties agree on an interest rate to be paid, at a specified settlement date, on a notional amount of principal that is never exchanged. FRAs are settled by net cash payments; that is, the difference between the rate agreed upon and the prevailing market rate at the time of settlement is recorded as a transaction in the sectoral balance sheet. The buyer of an FRA receives payment from the seller if the prevailing rate exceeds the rate agreed upon. The seller receives payment from the buyer if the prevailing rate is lower than the rate agreed upon. The existence of active financial markets in these contracts results in holding gains and losses. The creation of interest rate swaps and FRA contracts normally requires no entries in the sectoral balance sheet, because there are no exchanges of value at the inception of these contracts. Net cash settlement payments for interest rate swaps and FRAs are classified as

transactions in financial derivatives. Interest rate swaps usually involve ongoing settlements during the lives of the contracts; FRAs are usually settled at contract maturity.

Specific Foreign Currency Contracts

275. A *foreign exchange swap* contract consists of a spot sale/purchase of currencies and a simultaneous commitment to a forward purchase/sale of the same currencies. A *forward foreign exchange* contract consists of a commitment to transact, at a designated future date and agreed-upon exchange rate, in a specified amount of specified foreign currencies. A *cross-currency interest rate swap* contract (also known as a *currency swap*) consists of an exchange of cash flows related to interest payments and, at the end of the contract, an exchange of principal amounts in specified currencies at a specified exchange rate. There may also be an exchange of principal at the beginning of the contract. In that case, subsequent repayments that comprise both interest and amortization of principal may be made over time according to prearranged terms. Streams of interest payments resulting from swap arrangements are recorded in the sectoral balance sheet as transactions in financial derivatives, and repayments of principal are recorded in relation to relevant instruments.

276. For foreign-currency financial derivative contracts, it is necessary to distinguish between a transaction in a derivative contract and the requirement to deliver and receive underlying principal associated with the contract.

- In contrast to the creation of other forward contracts, the creation of a foreign currency financial derivative contract does not normally lead to the recording, in the sectoral balance sheet, of a transaction in financial derivatives. Any initial sale or purchase of currency is a transaction that is recorded, at the exchange rate agreed upon by the counterparties, in the sectoral balance sheet.
- The exchange rate for the forward sale or purchase of currencies through a foreign

STATISTICAL TREATMENT OF FINANCIAL DERIVATIVES

currency derivative contract is agreed upon by the counterparties when the terms of the contract are established. The derivative contract acquires value as the prevailing market exchange rate differs from the exchange rate agreed upon in the contract.

- At the time of settlement, the difference between the values (which are measured in the unit of account and at the prevailing exchange rate) of the currencies exchanged is allocated to a transaction in a financial derivative. In other words, if the value of the currency received exceeds that of the currency paid, a reduction in a financial derivative asset is recorded. The contra-entry is an increase in another asset (probably *currency and deposits*). When the value of the currency received is less than that of the currency paid, the opposite applies. That is, a reduction in a financial derivative liability is recorded. The contra-entry is a reduction in another item (probably *currency and deposits*).

CREDIT DERIVATIVES

277. The financial derivatives described in previous sections are related to *market risk*, which pertains to *changes in the market prices of securities and commodities and to changes in interest and exchange rates*. Other types of financial derivatives are used primarily to trade *credit risk*. These *credit derivatives*, which are *designed for trading in loan and security default risk, can be either forward or option contracts*. Like other financial derivatives, credit derivative contracts are frequently drawn up according to

standard legal agreements that specify procedures for the provision of margin, which serves as a basis for market valuation.

278. There are a number of common types of credit derivatives. A *total return swap* consists of *swapping of cash flows and capital gains and losses related to the liability of a lower-rated creditor for cash flows related to a guaranteed interest rate, such as an interbank rate, plus a margin*. A *spread option* is a *contract with value derived from an interest-rate spread between higher quality credit and lower quality credit*. For example, if the spread narrows sufficiently, the option holder benefits from exercising the option. A *credit default swap* consists of *swapping, usually on an ongoing basis, the risk premium inherent in an interest rate on a bond or a loan in return for a cash payment that is made in the event of default by the debtor*. Some credit default swap contracts require that one party make only a single payment to the other in order to be financially protected against the risk of a catastrophe befalling the creditor. Reference prices for these single-premium contracts, which are more properly classified as forms of insurance rather than financial derivatives, may not be readily available.

SELECTED SUPPLEMENTARY INFORMATION

279. Because financial derivatives are risk-transferring instruments, there may be interest—from analytical and policymaking points of view—in presenting transactions and positions in financial derivatives by type (option and forward) and by category of risk (foreign exchange, interest rate, and other).