

HANDBOOK ON SECURITIES STATISTICS

Part 1: Debt Securities Issues

May 2009



BANK FOR INTERNATIONAL SETTLEMENTS



EUROPEAN CENTRAL BANK

EUROSYSTEM



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Foreword

This *Handbook on Securities Statistics* (the *Handbook*) has been prepared jointly by the Bank for International Settlements (BIS), the European Central Bank (ECB) and the International Monetary Fund (IMF) in response to calls by different international groups, including the Committee on the Global Financial System, the Group of Eight (G8), the Irving Fisher Committee on Central Bank Statistics and the Working Group on Securities Databases to develop methodological standards for securities statistics. The preparation of the *Handbook* was initiated in mid-2008 and has been guided by the broad range of expertise in our organisations, as well as by close consultation with national experts on financial statistics. It also addresses a concern voiced by the Group of Twenty (G20) to fill data gaps and to strengthen data collection where needed.

It is the first publication of its kind to focus exclusively on debt securities statistics. Recent turmoil in global financial markets has confirmed the importance of timely, relevant, coherent and internationally comparable data on debt securities issues, from the perspective of both monetary policy and financial stability analysis. The *Handbook* provides a conceptual framework for the compilation and presentation of statistics on different types of debt securities, including those derived from the securitisation of assets, and is consistent with the recently reviewed international statistical standards.

Part I of the *Handbook* covers debt securities issues. Over time, further parts may be added to the *Handbook*, for instance to cover issues of other types of securities and holdings of securities. More specific compilation guidelines may also be developed, including with respect to the establishment of national and international security-by-security databases.

We recommend that national and international agencies, whose task is to prepare securities statistics make use of the *Handbook* within their existing statistical frameworks and develop strategies for the improvement of these frameworks, also with a view to achieving greater international comparability of securities statistics.

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Preface

In 2007, the Working Group on Securities Databases (WGSD) – originally established by the International Monetary Fund (IMF) in 1999 – was reconvened in response to various international initiatives and recommendations to improve information on securities markets. The WGSD is chaired by the IMF and includes the Bank for International Settlements (BIS), the European Central Bank (ECB) and the World Bank. Selected experts from national central banks, who participated actively in various international groups that identified the need to improve data on securities markets, have also been invited to contribute to some of the deliberations of the WGSD. In mid-2008, the WGSD agreed to sponsor the development of a *Handbook on Securities Statistics*.

Part I of the *Handbook* provides a conceptual framework for the presentation of statistics on debt securities issues based on the *2008 System of National Accounts* and the *Balance of Payments and International Investment Position Manual*, sixth edition. It gives guidelines on debt securities statistics by issuer, currency, maturity, type of interest rate and market. Finally, it shows how the general framework and the various classification schemes can be developed into more detailed presentation tables. In this way, the implementation of the concepts outlined in the *Handbook* would provide a comprehensive informed picture of debt securities issues statistics for the whole economy. At the same time, the *Handbook* allows flexibility in the presentation of such statistics, in line with the relative state of development of national debt securities markets.

The production of the *Handbook* is a joint undertaking by the BIS, the ECB and the IMF, which have a particular interest and expertise in securities statistics. The following officials were primarily involved:¹

BIS	Mr Paul Van den Bergh Mr Kerry Wood (Coordinator)
ECB	Mr Werner Bier Mr Reimund Mink
IMF	Mr José Cartas Mr Alfredo Leone (Chair of the WGSD) Mrs Armida San Jose.

¹The WGSD also recognises the contributions, on various specific issues, from a number of officials at the BIS, the ECB and the IMF.

The BIS, the ECB and the IMF also acknowledge, with gratitude, the contributions of various experts from the following central banks, national statistical agencies and international organisations (national agencies are listed alphabetically by country):²

Bank of Algeria	Central Bank of Lebanon
Central Bank of Argentina	Central Bank of Luxembourg
Central Bank of Armenia	National Bank of the Republic of Macedonia
Reserve Bank of Australia	Central Bank of Malaysia
Austrian National Bank	Bank of Mexico*
National Bank of Belgium	Netherlands Bank*
Central Bank of Brazil*	Reserve Bank of New Zealand
Bulgarian National Bank	Statistics Norway
Bank of Canada	State Bank of Pakistan
Statistics Canada	Central Reserve Bank of Peru
Central Bank of Chile	Bangko Sentral ng Pilipinas
People's Bank of China	Philippines Bureau of the Treasury
Bank of the Republic of Colombia	Philippines Securities and Exchange Commission
Croatian National Bank	National Bank of Poland
Czech National Bank	Bank of Portugal
National Bank of Denmark	National Bank of Romania
Bank of Finland	Central Bank of the Russian Federation
Bank of France	Saudi Arabian Monetary Agency
Deutsche Bundesbank*	Monetary Authority of Singapore*
Bank of Ghana	National Bank of Slovakia
Bank of Greece	Bank of Slovenia
Hong Kong SAR Census and Statistics Department*	South African Reserve Bank
Hong Kong Monetary Authority	Bank of Spain
Magyar Nemzeti Bank	Sveriges Riksbank
Central Bank of Iceland	Swiss National Bank
Reserve Bank of India*	Bank of Thailand
Bank Indonesia	Central Bank of the Republic of Turkey
Central Bank and Financial Services Authority of Ireland	Bank of England
Bank of Israel	Board of Governors of the Federal Reserve System*
Bank of Italy	Asian Development Bank
Bank of Japan	Commonwealth Secretariat
Bank of Korea	Islamic Financial Services Board
Bank of Latvia	United Nations Conference on Trade and Development

The valuable inputs, comments and suggestions received from experts in these institutions, as well as from the Statistics Committee of the European System of Central Banks, have significantly contributed to the preparation of the first part of the *Handbook*.

The envisaged preparation of additional parts of this *Handbook*, such as issues of other types of securities and holdings of securities, will actively involve users and compilers of securities statistics.

²Representatives of institutions marked with an asterisk gave, as members of an expert group, additional advice on the development of the *Handbook*.

Abbreviations and Acronyms

<i>2008 SNA</i>	<i>System of National Accounts 2008</i>
ABCP	Asset-backed commercial paper
ABS	Asset-backed security
BCEAO	Central Bank of West African States
BEAC	Bank of Central African States
BIS	Bank for International Settlements
BOOT	Build-own-operate-transfer
BOT	Build-operate-transfer
<i>BPM6</i>	<i>Balance of Payments and International Investment Position Manual</i> , sixth edition
CBO	Collateralised bond obligation
CDO	Collateralised debt obligation
CDS	Credit default swap
CLN	Credit-linked note
CLO	Collateralised loan obligation
CMO	Collateralised mortgage obligation
CPI	Consumer price index
<i>CPIIS</i>	<i>Coordinated Portfolio Investment Survey Guide</i> , second edition
CSDB	Centralised Securities Database
CUCB	Currency union central bank
DQAF	Data Quality Assessment Framework
ECB	European Central Bank
ECCB	Eastern Caribbean Central Bank
EU	European Union
<i>GFSM 2001</i>	<i>Government Finance Statistics Manual 2001</i>
IFSB	Islamic Financial Services Board
IIFS	Institution offering Islamic financial services
IMF	International Monetary Fund
ISIN	International Security Identification Number
LIBOR	London interbank offered rate
<i>MFS Guide</i>	<i>Monetary and Financial Statistics: Compilation Guide</i>
<i>MFSM</i>	<i>Monetary and Financial Statistics Manual</i>
MMF	Money market fund
MTN	Medium-term note
NIF	Note issue facility
NPISH	Non-profit institutions serving households
PFI	Private finance initiative
PIBS	Permanent interest-bearing share
PPP	Public-private partnership
PSIA	Profit sharing investment fund
RMBS	Residential mortgage-backed security
RUF	Revolving underwriting facility

SBS	Security-by-security
SPE	Special purpose entity
STRIPS	Separate trading of registered interest and principal of securities
VRN	Variable rate note

Section 1 Introduction

Objective of the *Handbook*

1.1 The *Handbook on Securities Statistics* (the *Handbook*) is the first publication of its kind to deal exclusively with the presentation of securities statistics. The objective of the *Handbook* is to improve information on securities markets. The *Handbook* develops a conceptual framework for the presentation of statistics on different types of securities. The intention is to develop a framework that produces relevant, coherent, and internationally comparable securities statistics for use in financial stability analysis and monetary policy formulation. Hence, the *Handbook* will assist policymakers and analysts in these areas, as well as national agencies that prepare securities statistics within their existing presentation frameworks.

Scope of Part 1 of the *Handbook*

1.2 Part 1 of the *Handbook* covers the conceptual framework for position and flow statistics on debt securities issues. This conceptual framework is summarised below using a stylised presentation table with aggregate statistics on debt securities issues. In the medium term, it is envisaged that the conceptual framework will be extended to issues of other types of securities and holdings of securities.

1.3 Because debt securities carry obligations to make future payments, they have the potential to render an economy, or sectors of an economy, vulnerable to solvency and liquidity problems, as seen during various periods of financial turmoil. These problems can have adverse effects on the real economy, with implications for financial

stability and monetary policy. Hence, debt securities markets clearly need to be monitored and measured.

1.4 The *Handbook* focuses on concepts and the presentation of securities statistics, and is not intended to be a compilation guide. This means that it does not provide data sources or uses, or methods for compiling statistics, nor does it give practical advice on questions such as frequency and timeliness with which statistics are to be compiled and disseminated.

1.5 Part 1 of the *Handbook* covers broad conceptual issues related to the presentation of statistics on debt securities issues, thus enabling it to address future financial innovation. It ensures the comparability of statistics across economies, which can then be used to develop meaningful global aggregates. The *Handbook* provides additional information to that in existing international statistical standards on borderline cases when debt securities are distinguished from other securities and other financial instruments. The *Handbook* also provides a framework for classifying securities statistics based on existing international statistical standards, extends the groupings used in these standards, and outlines new classifications.

Consistency with existing international statistical standards

1.6 The *Handbook* is consistent with existing international statistical standards. It is harmonised with the *System of National Accounts 2008 (2008 SNA)*, and the IMF *Balance of Payments and International Investment Position Manual*, sixth edition (BPM6). The consistency with these standards relates to

Table 1.1

Stylised presentation table

Issuer		Residents				Non-residents	All issuers	
		Non-financial corporations	Financial corporations	General government	Households and non-profit institutions serving households			
Market, currency, maturity, and interest rate								
Domestic market	Currency							Location of issue
	Maturity							
	Interest rate							
International markets	Currency							
	Maturity							
	Interest rate							
All markets	Currency							
	Maturity							
	Interest rate							
		Residence of issuer						

the definitions used to identify, classify, value and record positions and flows of debt securities. Consistency in the application of these definitions promotes comparability of the statistics within an economy and across countries. It also promotes efficiency in data preparation, improves analytical power, and provides a better understanding of the data.

1.7 The *Handbook* also provides linkages to other international statistical manuals and guides, including the IMF *Monetary and Financial Statistics Manual (MFSM)*, *Monetary*

and Financial Statistics: Compilation Guide (MFS Guide), *Government Finance Statistics Manual 2001 (GFSM 2001)*, *External Debt Statistics: Guide for Compilers and Users (External Debt Guide)*, and *Coordinated Portfolio Investment Survey Guide*, second edition (*CPIS Guide*).³

³These statistical handbooks and guides are expected to be updated and brought into line with the 2008 SNA.

The conceptual framework

1.8 The development of debt securities markets in each country has been determined by national regulations for listing, trading, and settlement. As a result, debt securities markets can differ considerably across countries, and this has given rise to different presentations for debt securities statistics. While it is not always simple to compare these different presentations, it is possible to develop a standard conceptual framework for them.

1.9 The stylised presentation in Table 1.1 classifies statistics on debt securities issued by institutional units in accordance with five criteria: issuer, currency, maturity, interest rate and market. These classification criteria, which are consistent with existing international statistical standards, are discussed in further detail in Section 6.

1.10 Presentation Table 1.1 is based on the “residence of issuer” approach, in line with the existing international statistical standards, such as the *2008 SNA* and the *BPM6*. It groups into sectors, the resident institutional units that issue debt securities. As an extension to the “residence of issuer” approach, the “location of issue” approach is also presented in Table 1.1. In this approach, debt securities statistics are shown according to the geographic or jurisdictional location of debt securities markets, with data presented on debt securities that have been issued in the domestic market by residents and non-residents. When collected for many markets, these statistics are useful for assessing the relative importance of financial centres. Such

data can also indicate the motivations of debtors and creditors, such as the attractiveness of the domestic market to foreign investors, and possible liquidity risk.

1.11 The structure of the remainder of this *Handbook* is as follows: Section 2 defines securities and debt securities, distinguishes debt securities from other financial instruments and lists the main features of debt securities; Section 3 defines institutional units and residence, and explains how institutional units are grouped into sectors and sub-sectors; Section 4 addresses securitisation; Section 5 describes the accounting and valuation rules to be followed; Section 6 explains how debt securities statistics can be presented according to different classifications, that is, by issuing sector and sub-sector, currency, maturity, interest rate, market and default risk; Section 7 consolidates the concepts and guidelines outlined in Sections 1-6 into detailed presentation tables, and Section 8 explains metadata for debt securities.

1.12 The *Handbook* also contains five annexes: Annex 1 defines structured products and structured debt securities, and provides criteria for their classification; Annex 2 describes Islamic debt securities and their classification; Annex 3 illustrates the relationship between market and nominal value; Annex 4 explains security-by-security databases and their benefits and costs; and Annex 5 lists examples of metadata for debt securities statistics. There is also a glossary of key terms used in the *Handbook*.

Section 2 Main Features of Debt Securities

2.1 Section 2 provides definitions of securities and debt securities, sets out the criteria used to distinguish debt securities from other types of securities, and outlines the main features of debt securities. These can be used to determine whether specific securities found in securities markets are debt securities. Borderline cases are also examined.

Definitions of a security and a debt security

2.2 A security is a negotiable financial instrument.⁴ Negotiability refers to the fact that its legal ownership is readily capable of being transferred from one owner to another by delivery or endorsement. While any financial instrument can potentially be traded, a security is designed to be traded on an organised exchange or “over the counter”, although evidence of actual trading is not required. The over-the-counter market involves parties negotiating directly with one another, rather than on a public exchange (2008 SNA 11.33 and BPM6 5.15).

2.3 Securities include debt securities, equity securities and investment fund shares or units. A debt security is a negotiable financial instrument serving as evidence of a debt (2008 SNA 11.64). Loans, deposits, trade credits and insurance technical reserves are non-negotiable financial instruments.

⁴Financial instruments are identical to financial claims. They are financial assets that have corresponding financial liabilities (2008 SNA 11.27).

2.4 Financial derivatives are not classified as securities even if they are negotiable financial instruments. No principal amount is advanced that has to be repaid and no investment income accrues (MFSM 176). Financial derivatives are linked to specific financial or non-financial assets or indices and specific financial risks can be traded in financial markets in their own right through them (BPM6 5.80).

Distinguishing debt securities from other types of securities

2.5 Various criteria are used to distinguish debt securities from other types of securities such as equity securities, and investment fund shares or units (see Table 2.1).

- Equity securities, which are also called shares (both listed and unlisted), are securities acknowledging claims on the residual value of a corporation after the claims of all creditors have been met (2008 SNA 11.83).
- Investment fund shares or units are issued by investment funds, which are collective investment undertakings through which investors pool funds for investment in financial and non-financial assets (2008 SNA 11.94).

2.6 The different types of securities can also be distinguished by type of income. While debt securities accrue interest, equity securities pay dividends, and investment fund shares or units pay investment fund income.

Table 2.1

Types of securities

	Debt securities	Equity securities	Investment fund shares or units
Main characteristics	Issuer is obliged to pay a specified amount of principal and interest to the owner	Acknowledgement of claims on the residual value of a corporation after the claims of all creditors have been met	Issued by collective investment undertakings and representing a share in an investment portfolio
Type of income	Interest	Dividends	Investment fund income

Main features of debt securities

2.7 Debt securities should display all, or most, of the following quantitative characteristics:

- an issue date, on which the debt security is issued;
- an issue price, at which investors buy the debt securities when first issued;
- a redemption (or maturity) date, on which the final contractually scheduled repayment of the principal is due;⁵
- a redemption price or face value,⁶ which is the amount to be paid by the issuer to the holder at maturity;
- an original maturity, which is the period from the issue date until the final contractually scheduled payment;

⁵The maturity date may coincide with the conversion of a debt security into an equity security. In this context, convertibility means that the holder may exchange a debt security for the issuer's common equity. Exchangeability means that the holder may exchange the debt security for equity securities of a corporation other than the issuer. Perpetual securities and some preferred shares, which have no stated maturity date, are classified as debt securities (see paragraph 2.14).

⁶The face value of a debt security is defined as the amount of principal to be repaid (2008 SNA 3.154 (d)).

- a remaining (or residual) maturity, which is the period from the reference date until the final contractually scheduled payment;
- the coupon rate that the issuer pays to the holders, which may be fixed throughout the life of the debt security or vary with inflation, interest rates or asset prices;⁷
- the coupon dates, on which the issuer pays the coupon to the securities' holders, and
- the issue price, redemption price, and coupon rate may be denominated (or settled) in either domestic currency or foreign currencies.

2.8 Qualitative features of debt securities include:

- the documents specifying the rights of debt securities issuers, in the form of indentures or covenants. The terms of contracts may be changed only with great difficulty, with amendments to the governing document generally requiring approval by a majority vote of the debt securities' holders; and

⁷Some debt securities have no coupon payments during their life, with the full return being paid at maturity (zero-coupon bonds, see Section 6), while some structured debt securities pay no coupon at all (see Annex 1).

- the default risk attached to debt securities, which is the creditworthiness of individual debt securities issues assessed by credit rating agencies. For further details, see Section 6.

Borderline cases

Negotiable loans

2.9 Debt securities may include loans that have become negotiable de facto, but only if there is evidence of secondary market trading, including the existence of market makers, and frequent quotations of the instrument, such as provided by bid-offer spreads (2008 *SNIA* 11.65). These debt securities result from the conversion of loans, with the recording of two financial transactions, that is, liquidation of the loan and creation of the new debt security.

Private placements

2.10 Debt securities also include private placements. Private placements of debt securities involve an issuer selling debt securities directly to a small number of investors. Typically, the creditworthiness of private placements are not assessed by credit rating agencies, and as the securities are generally not resold or re-priced, their secondary market is shallow. However, to the extent that some private placements can be (and are) traded among investors, the criterion of negotiability for debt securities is met.

Structured debt securities

2.11 Debt securities that combine different features of financial instruments pose challenges with respect to their classification. This is particularly the case for so-called structured debt securities, which are a sub-set of structured securities.

2.12 A structured debt security typically combines a debt security, or a basket of debt securities, with a financial derivative, or a basket of financial derivatives. This financial derivative, or the basket, is typically embedded in and therefore inseparable from the debt

security. When the debt security and financial-derivative components of a financial instrument are separable from each other they should be classified accordingly, but if they cannot be separated then the instrument should be valued and classified according to its primary characteristics (*BPM6* 5.83 (d)), either as a debt security or financial derivative. For further details on structured debt securities, see Annex 1.

Islamic debt securities

2.13 Debt securities also encompass financial instruments governed by Islamic rules and principles (Shari'ah). Islamic finance uses financial instruments that are backed by returns from a non-financial asset and earn a variable rate of return tied to the performance of the asset, or returns that are not specified before the investment is made, but shared on the basis of a pre-agreed ratio of actual earnings. Islamic debt securities are distinguished from equity securities by two categories of criteria. The first category comprises criteria used to differentiate conventional debt securities from equity securities. The second category comprises additional criteria used to distinguish Islamic debt securities from equity securities. These criteria and other details concerning Islamic debt securities are outlined in Annex 2.

Preferred shares

2.14 Preferred shares⁸ typically rank higher than ordinary equity securities. They may carry superior voting rights to ordinary equity securities or no voting rights at all. They may entitle their holders to a dividend that is paid out prior to any dividends to ordinary equity holders and they may be convertible into ordinary equity securities. Only preferred shares that pay a fixed income

⁸Preferred shares are also called preference shares, preferred stock or non-participating preferred shares.

and do not provide for participation in the distribution of the residual value of a corporation on its dissolution are classified as debt securities.

Depository receipts

2.15 Depository receipts allow a non-resident institutional unit to introduce its debt or equity securities into another market in a form more readily acceptable to the investors in that market. A resident deposit-taking corporation will purchase the underlying securities and then issue receipts in a currency more acceptable to the investor. These instruments are classified according to the underlying financial instrument backing them, that is, as debt securities or equity securities. This is because the “issuer” (the deposit-taking corporation) does not take the underlying securities onto its balance sheet, but rather acts as a facilitator. The non-resident debtor is the issuer of the underlying securities (*External Debt Guide* Appendix I).

Securities repurchase agreements

2.16 A securities repurchase agreement is an arrangement involving the provision of securities in exchange for cash with a commitment to repurchase the same or similar securities at a fixed price either on a specified future date, or with an “open” maturity. Securities lending with cash collateral and sell / buy-backs are terms for different arrangements with the same economic effect as a securities repurchase agreement. Economic ownership of the securities provided as collateral under securities lending arrangements, including a securities repurchase agreement, is considered not to have changed because the cash recipient (the seller of the securities) is still subject to all market risks (and also obtains all the benefits). Therefore, transactions involving repurchase agreements and securities lending do not include new debt securities issues, but rather the incurrence of collateralised loans. Hence, these transactions are excluded from debt securities statistics.

Section 3 Institutional Units and Sectors

3.1 Section 3 outlines the concepts of an institutional unit and residence, and explains the allocation of institutional units to sectors and sub-sectors. It expands on matters that are relevant for the presentation of debt securities statistics and considers some borderline cases.

Definition of an institutional unit

3.2 An institutional unit is an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities (2008 SNA 4.2). The main attributes of institutional units are described in 2008 SNA 4.2 (a) to (d).

Definition of residence

3.3 The residence of an institutional unit is the economic territory where it has its centre of predominant economic interest (2008 SNA 4.10). The centre of predominant economic interest of an institutional unit is the economic territory where it engages and intends to engage in economic activities and transactions on a significant scale for one year or more (BPM6 4.114). The most commonly used concept of economic territory is the area under the effective economic control of a single government. However, an economic territory may be larger or smaller than this, as in a currency or economic union or a part of a country or of the world (2008 SNA 4.10).

3.4 An institutional unit is a resident of one economic territory only, determined by its centre of predominant economic interest

(BPM6 4.113). The connection of an institutional unit to a particular economic territory is determined by aspects such as its physical location and being subject to the jurisdiction of the government of the territory. Corporations are considered to have their centre of predominant economic interest in the economy where they are legally constituted and registered: in some instances, a corporation may have little or no physical presence (BPM6 4.134). Beyond this general definition, certain special cases merit consideration (BPM6 4.131-4.137).

International and regional organisations

3.5 International and regional organisations are not considered residents of the territories in which they are located or they conduct their affairs (BPM6 4.105). International organisations, such as international financial institutions, should be classified as non-residents in all national statistics. Regional organisations are classified as residents of the economic entity formed by the national economies belonging to the region, which might be a currency union or a political union, but not as residents of any national economy (BPM6 4.142).

Offshore enterprises

3.6 Some countries create separate physical or legal zones that are under their control but to which legal, tax and other regulatory benefits are extended. Offshore banks enjoy low or no taxation and exemptions from regulations normally imposed on onshore institutions, such as reserve requirements or foreign

exchange restrictions. These financial corporations mostly serve non-residents or conduct financial intermediation between residents and non-residents (*MFS Guide* 3.90). Offshore institutional units are residents of the economy where they are incorporated or registered (*BPM6* 4.8).

Multi-territory enterprises

3.7 Multi-territory enterprises are single enterprises that run seamless operations over more than one economic territory, but for which branches cannot be identified as attributable to a single economic territory (*BPM6* 4.41). Typical cases are enterprises with cross-border operations such as hydroelectric projects on border rivers, pipelines, bridges, or tunnels that cross borders.

3.8 In the case of multi-territory enterprises, the *BPM6* recommends identifying separate institutional units for each economy. However, if this is not feasible because separate accounts cannot be developed, it is then necessary to prorate the total operations of the enterprise into the individual economic territories. Without providing definitive advice, the *BPM6* mentions a range of possible prorating factors, including: equity holdings, equal splits, splits based on operational factors such as tonnages or wages and any prorating formula utilised for taxation (*BPM6* 4.43).

Allocation of institutional units

3.9 International statistical standards group resident institutional units into five mutually exclusive sectors: non-financial corporations; financial corporations; general government; households, and non-profit institutions serving households (NPISH). Non-financial corporations, financial corporations, and general government are further divided. The scope of each sector is outlined below.

Non-financial corporations

3.10 The non-financial corporations sector comprises resident corporations (and non-

profit institutions) whose principal activity is the production of market goods and non-financial services (*2008 SNA* 4.94). Some non-financial corporations may have secondary financial activities, such as producers or retailers of goods that provide consumer credit directly to their customers. Such corporations are classified as non-financial corporations, provided their main activity is the production of goods and non-financial services (*2008 SNA* 4.95).

3.11 The non-financial corporations sector can be divided, on the basis of the types of institutional units exercising control over them, into public non-financial corporations, national private non-financial corporations and foreign controlled non-financial corporations (*2008 SNA* 4.96).

Financial corporations

3.12 The financial corporations sector consists of all resident corporations principally engaged in providing financial services to other institutional units. The production of financial services takes the form of financial intermediation, financial risk management, liquidity transformation, or auxiliary financial activities (*2008 SNA* 4.98). The financial corporations sector can be divided into nine sub-sectors according to their activity in the market and the type and liquidity of their liabilities.

Central bank

3.13 The central bank is the national financial institution that exercises control over key aspects of the financial system. This sub-sector comprises: the national central bank, including where it is part of a system of central banks; currency boards or independent currency authorities that issue national currency fully backed by foreign exchange reserves; and central monetary agencies of essentially public origin (for example, agencies managing foreign exchange or issuing banknotes or coins) that keep a complete set of accounts but are not classified as part of central government (*2008 SNA* 4.104).

3.14 A currency union comprises two or more economies that have a regional central decision making body, normally a currency union central bank (CUCB), with the authority to issue the legal tender of the area and conduct a single monetary policy (*BPM6* A3.9). Presently, there are two kinds of currency unions. A centralised currency union model has a CUCB owned by the governments of the member countries, and the central bank operations in each member country are carried out by branches or agencies of the regional central bank. A decentralised currency union model comprises a CUCB and national central banks that own the CUCB and act as the central bank for the countries where they are located.⁹

3.15 A CUCB is an international or supranational financial institution that acts as a common central bank for member countries of a currency union. The CUCB is an institutional unit in its own right (*BPM6* A3.11). If the currency union is structured such that the CUCB has headquarters in one country and national offices in each member country, its headquarters are considered a separate unit resident in the region as a whole and not in any member economy. National offices of CUCB, which act as the central bank for those countries, are treated as a resident of the country where they are located (*MFS Guide* 3.53).

Deposit-taking corporations except the central bank

3.16 Deposit-taking corporations except the central bank have financial intermediation as their principal activity. They incur liabilities in the form of deposits or financial instruments that are close substitutes for deposits (*2008 SNA* 4.105).

⁹Examples of the centralised model are the Central Bank of West African States (BCEAO), the Bank of Central African States (BEAC) and the Eastern Caribbean Central Bank (ECCB). The European Central Bank (ECB) is an example of the decentralised model.

3.17 In general, this sub-sector comprises commercial banks, universal banks, all-purpose banks, savings banks (including trustee savings banks and savings and loan associations), post office giro institutions, post banks, giro banks, rural credit banks, agricultural credit banks, co-operative credit banks, credit unions, and specialised banks or other financial corporations if they take deposits or issue liabilities included in the national definition of broad money (*2008 SNA* 4.106).

Money market funds

3.18 Money market funds (MMF) are collective investment schemes that raise funds by issuing shares or units. The proceeds are invested mainly in money market instruments, other MMF shares or units, transferable debt instruments with a residual maturity of not more than one year, bank deposits and instruments that provide a rate of return close to the interest rates of money market instruments. MMF shares or units are often transferable by cheque or other means of direct third-party payment. Because of the nature of the instruments the schemes invest in, their shares or units may be regarded as close substitutes for deposits (*2008 SNA* 4.107).

Non-MMF investment funds

3.19 Non-MMF investment funds are collective investment schemes that raise funds by issuing shares or units. The proceeds are invested primarily in financial assets, other than short-term assets, or in non-financial assets, such as real estate (or both). Non-MMF investment fund shares or units are generally not close substitutes for deposits (*2008 SNA* 4.108).

Other financial intermediaries except insurance corporations and pension funds

3.20 Other financial intermediaries except insurance corporations and pension funds consist of financial corporations that are engaged in providing financial services by

incurring liabilities in forms other than currency, deposits or close substitutes of deposits, on their own account for the purpose of acquiring financial assets by engaging in financial transactions on the market (2008 SNA 4.109).

3.21 Units classified in this sub-sector include financial corporations that specialise in the securitisation of assets. In Section 4, these institutional units are referred to as securitisation corporations.

3.22 Also classified in the other financial intermediaries sub-sector are: security and derivative dealers (operating on own account); financial corporations engaged in lending (including the separately incorporated finance subsidiaries or associates of retailers) that may undertake financial leasing and personal or commercial finance; central clearing counterparties, and specialised financial corporations as outlined in 2008 SNA 4.110.

Financial auxiliaries

3.23 Financial auxiliaries are financial corporations principally engaged in activities closely related to financial intermediation, but that do not act as intermediaries (2008 SNA 4.111). Units in this sub-sector do not raise funds or extend credit on their own account.

3.24 The most common types of financial auxiliaries are insurance brokers and agents, loan and securities brokers, investment advisers, flotation corporations, corporations that arrange derivative and hedging instruments without issuing them, corporations providing infrastructure for financial markets, managers of pension funds and mutual funds, stock and insurance exchanges, foreign exchange bureaux, non-profit institutions serving financial corporations, head offices of financial corporations that are principally engaged in controlling financial corporations, and central supervisory authorities of financial intermediaries and financial markets when they are separate institutional units (2008 SNA 4.112).

Captive financial institutions and money lenders

3.25 Captive financial institutions and money lenders consist of institutional units providing financial services, where most of either their assets or liabilities are not transacted on open financial markets (2008 SNA 4.113). The sub-sector includes: trusts; brass plate companies; holding corporations that hold only the assets of a group of subsidiary corporations and whose principal activity is owning the group without any other service to the enterprises in which the equity is held; special purpose entities (SPE) or conduits;¹⁰ money lenders, pawnshops, etc. (2008 SNA 4.114).

3.26 Resident captive financial institutions, such as trusts, brass plate companies, holding companies, SPE and conduits, are simply passive holders of assets and liabilities and are always related to another corporation, often as a subsidiary. They are not treated as separate institutional units but as integral parts of the parent corporation, as they cannot act independently of their parent corporation (2008 SNA 4.53 to 4.66). Captive financial institutions set up outside the country where the parent corporation resides are treated as separate units and residents of the economic territory where they are incorporated or registered (BPM6 4.52). SPE set up by general government with characteristics and functions similar to captive financial institutions are also treated as an integral part of general government if they are resident, but as separate institutional units if they are non-resident units.

Insurance corporations

3.27 Insurance corporations consist of incorporated, mutual and other entities, whose principal function is to provide life, accident, sickness, fire or other forms of insurance to individual institutional units or groups of units or reinsurance services to

¹⁰This sub-sector excludes institutional units involved in the securitisation of assets, or securitisation corporations, which are classified as other financial intermediaries.

other insurance corporations. Captive insurance, that is, an insurance corporation that serves only its owners, is included in this sub-sector. Also included are deposit insurers, issuers of deposit guarantees and other issuers of standardised guarantees (2008 SNA 4.115).

Pension funds

3.28 Pension funds are set up to provide retirement benefits for specific groups of employees (and self-employed persons). Governments sometimes organise pension schemes for their employees that are independent of the social security system. The pension fund sub-sector consists of only those social insurance pension schemes that are institutional units separate from the units that create them (2008 SNA 4.116). Excluded from this sub-sector are non-autonomous pension schemes managed by employers, government-sponsored pension schemes funded through wage taxes (pay-as-you-go schemes), and arrangements organised by non-government employers, when the reserves of the fund are simply included among the employer's own reserves or are invested in securities issued by that employer (BPM6 4.90).

General government

3.29 Government units are unique kinds of legal entities established by political processes that exercise legislative, judicial, or executive authority over other institutional units within a given area (2008 SNA 4.117). Within a single territory there may be different levels of government.

3.30 Two methods for delineating the sub-sectors of general government are distinguished. First, the general government sector can be divided into central government, state government, local government and social security funds (2008 SNA 4.129). Alternatively, social security funds may be allocated to other general government sub-sectors (central, state and local) in accordance with the level of government at which they operate (2008 SNA 4.130). The choice between the two methods depends mainly on

the size, and importance, of social security funds within a country and on the way they are managed (2008 SNA 4.132).

Central government

3.31 The political authority of central government extends over the entire territory of the country. The central government has the authority to impose taxes on all resident and non-resident units engaged in economic activities within the country. It is responsible for providing collective services for the benefit of the community as a whole, such as national defence, relations with other countries, and law and order, and it also seeks to ensure the efficient operation of the social and economic system of the country. In addition, it may incur expenses on the provision of services primarily for the benefit of individual households, such as education or health, and it may make transfers to other institutional units, including other levels of government (2008 SNA 4.135).

3.32 The central government may include units that engage in financial transactions that in other countries would be performed by central banks or other deposit-taking corporations. When financially integrated into the central government and under its direct control and supervision, these monetary authority functions are recorded as part of the central government sector, rather than in the financial sector (2008 SNA 4.139).

State government

3.33 A state, province, or region is the largest geographical area into which the country as a whole may be divided for political or administrative purposes (2008 SNA 4.141). A state government usually has the fiscal authority to levy taxes on institutional units that are resident in or engage in economic activities in its area of competence. A state government may receive transfers from the central government, but it must be able to appoint its own officers independently of external administrative control and have spending autonomy. If a regional unit is entirely dependent on funds from the central

government, and if the central government controls the ways in which those funds are to be spent at the regional level, it should be treated as a central government agency (2008 SNA 4.142).

Local government

3.34 Local government units are institutional units whose fiscal, legislative and executive authority extends over the smallest geographical areas distinguished for administrative and political purposes. The same rules regarding administrative authority, stated above, that determine whether state governments should be considered as a separate institutional unit or a central government agency should also apply to local governments in their relations with the central and state governments (2008 SNA 4.145).

Social security funds

3.35 Social security funds are institutional units that operate social security schemes that cover the community as a whole or large sections of the community and are imposed and controlled by government units. The schemes cover a wide variety of programmes, providing benefits in cash or in kind for old age, invalidity or death, survivors, sickness and maternity, work injury, unemployment, family allowance, health care, etc (2008 SNA 4.124). The social security funds sub-sector consists of the social security funds operating at all levels of government (2008 SNA 4.147).

Households

3.36 A household is a group of persons who share the same living accommodation, pool some or all of their income and wealth, and consume certain types of goods and services collectively, mainly housing and food (2008 SNA 4.149). An unincorporated enterprise can only be treated as a corporation if it is possible to separate all assets into those that belong to the household in its capacity as a consumer from those belonging to the household in its capacity as a producer (2008 SNA 4.157).

Non-profit institutions serving households

3.37 Non-profit institutions serving households (NPISH) provide goods and services to households free of charge or at prices that are not economically significant.¹¹ NPISH consist mainly of associations such as: trade unions; professional or learned societies; consumers' associations; political parties (except in single-party states where the political party is included in general government); churches and religious societies (including those financed by government); social, cultural and recreational sports clubs; and organisations that provide goods and services for philanthropic purposes rather than for the units that control them (2008 SNA 4.166 and 4.167).

Special issues

Public-private partnerships

3.38 Public-private partnerships (PPP) are arrangements used by governments in partnership with the private sector to finance the construction and operation of fixed assets (roads, bridges, tunnels, etc.). PPP can take numerous forms and names, such as private finance initiatives (PFI), build-operate-transfer (BOT) schemes, build-own-operate-transfer (BOOT) schemes, etc.¹² For example, under a BOT scheme, a private corporation finances, designs, constructs, and operates a facility for

¹¹Non-profit institutions are allocated to the corporations sectors when they are engaged in market production and to the general government sector if they are engaged in non-market production but subject to government control.

¹²There is a wide spectrum of schemes similar to BOT and BOOT, such as build-transfer, build-own-operate, build-lease-transfer, build-transfer-operate, contract-add-operate, design-build-finance-operate, develop-operate-transfer, rehabilitate-operate-transfer, rehabilitate-own-operate, etc.

a specified period of time. After the end of the contract, ownership of the asset is transferred to the government (*2008 SNA* 22.157 to 22.166).

3.39 Because of the complex sharing arrangements for the risks and returns of the assets that may be stipulated in the contracts, the economic owner of the fixed assets is often unclear and a question may arise as to whether the PPP is a private corporation or a general government unit. Of relevance to the question of sectoral allocation (general government or private corporation) of securities issued by a PPP, is the nature of the economic relationship between the government and private corporation, which should be carefully analysed, going beyond the legal arrangements. Although it is not possible to prescribe a uniform treatment for the sectoral allocation of all PPP, important factors to be considered are who bears most of the construction, availability, demand and obsolescence risks, and the degree of government control over the project design and over the services provided (*2008 SNA* 22.159).

Public sector

3.40 The public sector¹¹ consists of all institutional units of the general government sector plus all public corporations. Public corporations comprise public non-financial corporations, public financial corporations other than the central bank, and the central bank (*2008 SNA* 22.41).

3.41 To be classified as a public corporation, an institutional unit must be controlled by a government unit, another public corporation, or some combination of them, and sell most of its output at economically significant prices (*2008 SNA* 22.27). The government may secure control over a corporation by owning more than half of the voting equity securities or otherwise controlling more than half of the equity holders' voting power; or through special legislation empowering the government to determine corporate policy or to appoint the directors (*2008 SNA* 4.80).

¹¹The public sector is not a separate institutional sector such as the five sectors described in this section, but rather it is a grouping of sectors and sub-sectors used in analysis.

Section 4 Securitisation

4.1 Section 4 focuses on debt securities issued under securitisation schemes. It provides a general description of securitisation covering the principal features of securitisation and the main institutional units that can be involved in securitisation transactions, together with a streamlined classification for various financial instruments within the statistical framework for debt securities statistics.

4.2 The securitisation of assets or future income streams is a well established process that has operated for some decades. Recent financial innovation led to the establishment and extensive use of new financial corporations to facilitate the creation, marketing, and issuance of debt securities. Furthermore, securitisation schemes have become increasingly sophisticated.

4.3 Securitisation has been driven by various considerations. For corporations these include: cheaper funding costs than available through banking facilities; reduction in regulatory capital requirements; risk transfer, and diversification of funding sources. For governments, the main motivating factor has been to reduce the average cost of budget financing relative to when conventional government debt securities issues are used.

Definition of securitisation

4.4 Securitisation results in debt securities for which coupon or principal payments (or both) are backed by specified financial or non-financial assets or future income streams.¹⁴ A variety of assets or future

income streams may be used securitised including, among others: residential and commercial mortgage loans; consumer loans; corporate loans; government loans; credit derivatives, and future revenue.

The securitisation process

4.5 Securitisation schemes vary within and across debt securities markets. They can be grouped into three broad types.¹⁵ First, those in which the original asset owner creates new debt securities, that is, there is no securitisation corporation and no transfer of

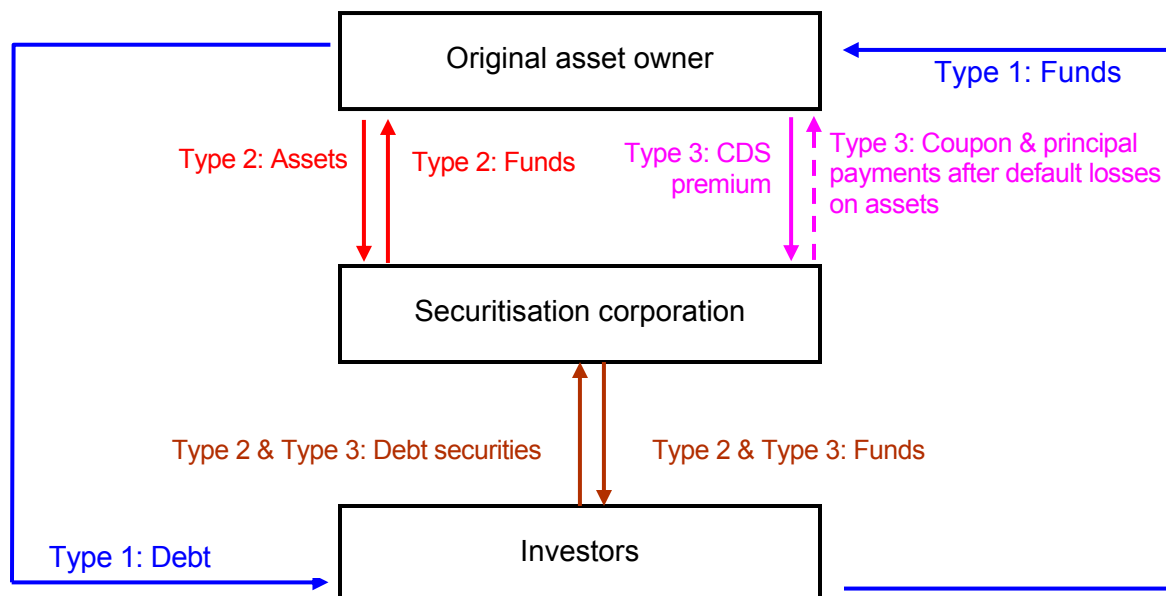
Handbook. In particular, the definition of securitisation in Regulation (EC) No 24/2009 of the ECB concerning statistics on the assets and liabilities of financial vehicle corporations engaged in securitisation transactions (ECB/2008/30) is similar to those described below for Type 2 and Type 3 securitisation schemes. Type 1 securitisation schemes, or on-balance sheet securitisation, are outside the scope of the ECB regulation by definition.

¹⁵Transactions where the original asset owner converts one type of asset (for example, loans) on its balance sheet to another type of asset (for example, debt securities) through the use of a securitisation corporation is not considered as securitisation, but rather as a restructuring of assets. In this case, the original asset owner sells assets to a securitisation corporation, and then the securitisation corporation issues debt securities back to the original asset owner. The original asset owner typically retains these debt securities on its balance sheet rather than trading them in the secondary market. The debt securities issued by the securitisation corporation should, however, be included in debt securities statistics.

¹⁴In the European Union (EU), the definition of securitisation is narrower than the one in this

Diagram 4.1

Securitisation process



assets (Type 1 in Diagram 4.1). Second, those involving a securitisation corporation and a transfer of assets from the original asset owner (Type 2 in Diagram 4.1). Third, those involving the transfer of credit risk only, but not the transfer of assets, either through a securitisation corporation or through the direct issuing of debt securities by the original asset owner (Type 3 in Diagram 4.1).

4.6 The first type of securitisation scheme, usually known as on-balance sheet securitisation, involves debt securities issues backed by an income stream generated by the assets. The assets remain on the balance sheet of the debt securities issuer (the original asset owner), typically as a separate portfolio. The issue of debt securities provides the original asset owner with funds.

4.7 The second type of securitisation scheme, typically referred to as true-sale securitisation, involves debt securities issued by a securitisation corporation where the underlying assets have been transferred from the original asset owner's balance sheet. The

proceeds received from selling the debt securities to investors fund the purchase of the assets. The income stream from the pool of assets (typically, interest payments and principal repayments on the loans) is used to make the coupon payments and principal repayments on the debt securities.

4.8 The third type of securitisation scheme, often referred to as synthetic securitisation, involves transfer of the credit risk related to a pool of assets without transfer of the assets themselves. The original asset owner buys protection against possible default losses on the pool of assets using credit default swaps (CDS).¹⁶ The proceeds from the issue of debt securities are placed by a securitisation corporation on deposit, and the interest accrued on the deposit, together with the premium from the CDS, finances coupon payments on the debt securities. If there is a

¹⁶A credit default swap (CDS) is a financial derivative whose primary purpose is to trade credit default risk (2008 SNA 11.122).

default, the protection buyer (the original asset owner) is compensated by the protection seller for the default losses related to the pool of assets, while the holders of the debt securities suffer losses for the same value.¹⁷

4.9 Synthetic securitisation without a securitisation corporation occurs when the original asset owner issues credit-linked notes (CLN). CLN are debt securities that are backed by reference assets, such as loans and bonds, with an embedded CDS allowing credit risk to be transferred from the issuer to investors. Investors sell credit protection for the pool of assets to the protection buyer (or issuer) by buying the CLN. Repayment of principal and interest on the notes is conditional on the performance of the pool of assets. If no default occurs during the life of the note, the full redemption value of the note is paid to investors at maturity. If a default occurs, then investors receive the redemption value of the note minus the value of the default losses.

Statistical classification

4.10 In each type of securitisation scheme described above, a range of debt securities may be issued by the original asset owner (Type 1) or the securitisation corporation (Type 2 and Type 3), such as: asset-backed securities (ABS), including asset-backed commercial paper (ABCP), covered bonds,¹⁸

¹⁷The debt securities issued can be split into different credit rated tranches enabling holders with different risk profiles to satisfy their investment criteria. The most senior tranche has the first claim on the securities underlying assets, with the priority of claims decreasing to the most junior tranche. If a default occurs, the coupon payments to holders of debt securities in the junior tranche are the first to be re-directed to the original asset owner.

¹⁸Debt securities issued under similar schemes include: Pfandbriefe, obligations foncières, obbligazioni bancarie garantite, lettres de gage hypothécaires and lettres de gage publiques, obrigações hipotecárias and obrigações

CLN, and debt securities with credit structuring, including collateralised debt obligations (CDO).

4.11 ABS, such as residential mortgage backed securities (RMBS), are debt securities created through securitisation that typically have an original term to maturity of more than one year, and are usually backed by long-term mortgages. ABCP are debt securities similar to ABS, but they have an original term to maturity of one year or less. ABCP may be backed by residential mortgages, but also by short-term trade receivables, leases, or margin loans, among other assets. ABS and ABCP are classified as debt securities because the security issuers are required to make payments, while the holders do not have a residual claim on the underlying assets; if they did, the instrument would be classified as either equity securities or investment fund shares (*BPM6* 5.47).

4.12 Covered bonds are debt securities created through securitisation and issued by the original asset holder that are backed by assets remaining on its balance sheet, but are identified as belonging to a cover pool.¹⁹ The cover pool consists mainly of mortgages with a high credit rating or loans to the public sector. In the *MFS Guide*, covered bonds are referred to as mortgage backed bonds (*MFS Guide* 4.24).

4.13 The criteria used to determine whether CLN are securitisation debt securities are based on whether or not they are backed by payments on specified assets or income streams, rather than whether or not they are issued by a securitisation corporation. For further details, see Annex 1.

4.14 CDO are debt securities created through securitisation that are backed by a relatively small pool of heterogeneous debt

hipotecárias sobre a sector público, and cédulas hipotecarias and cédulas territoriales.

¹⁹In the EU, covered bonds are defined by the Capital Requirements Directive, which limits the range of accepted assets.

instruments, such as bonds and loans. Liabilities are ranked to protect investors against different levels of credit risk. Similar instruments include collateralised mortgage obligations (CMO), collateralised loan obligations (CLO), and collateralised bond obligations (CBO).

4.15 The treatment of securitisation schemes and their classification into sectors and sub-sectors varies according to the type of scheme. In Type 1 and some Type 3 securitisation schemes, where the original asset owner issues debt securities, the issuing institutional unit is either a non-financial corporation, financial corporation, or general government unit. In Type 2 and some Type 3 securitisation schemes, where the debt securities are issued by a securitisation corporation, the issuing institutional unit is a financial intermediary in the financial corporations sub-sector “other financial intermediaries except insurance corporations and pension funds”.

4.16 Some financial corporations are created to hold securitised assets or other assets that have been removed from the balance sheet of the original asset owner, or issue debt securities that are backed by these assets (or both). It is essential to establish whether these corporations actively manage their portfolio and bear risk, or simply act as trusts that passively manage assets or hold debt securities. When the corporation is the legal owner of a portfolio of assets, issues debt securities that represents an interest in the portfolio, has a full set of accounts and bears market and credit risks it is acting as a financial intermediary, and in particular a securitisation corporation. In this case, the securitisation corporation is classified in the financial corporations sub-sector “other financial intermediaries except insurance corporations and pension funds”.

4.17 Securitisation corporations are distinguished from units that are created solely to hold specific portfolios of financial assets and liabilities. When the unit does not bear market or credit risks it is combined with its parent corporation, if it is resident in

the same country as the parent. When the unit is set up outside the economic territory in which the parent corporation is located, it is considered resident in the country in which it is incorporated, even if it has little or no physical presence. In these cases, it is treated as a separate institutional unit of the financial corporations sub-sector “captive financial institutions and money lenders” of the host economy.

4.18 General government units may also be involved in securitisation schemes. There are two cases that need to be considered for classification.

- Where a general government unit is the original asset owner and it transfers assets, such as government loans extended to other sectors, to a separate securitisation corporation, the distinction between securitisation debt securities and conventional government debt securities is based on the involvement of the securitisation corporation that issues debt securities backed by the loans.
- A general government unit may also issue debt securities backed by specific, earmarked future revenue rather than loans or other financial assets that it holds on its balance sheet. In this case, the distinction between securitisation debt securities and conventional government debt securities is not so straightforward.²⁰

²⁰The ability to raise taxes or other government revenue is not classified as an asset in the *2008 SNA*. Nevertheless, the earmarking of future revenue, such as receipts from road tolls, to service debt securities issued by general government may resemble securitisation. General governments that use these schemes give holders of the securitisation debt securities a higher level of protection, or a preferred status, as the principal repayments and coupon payments are backed by earmarked future revenue. In the EU, methodological criteria have been developed for securitisation undertaken by general government (see also <http://europa.eu/rapid/pressrelease/2007/88>).

Section 5 Accounting Rules, Valuation and Accrued Interest

5.1 The presentation tables outlined in this *Handbook* cover positions and flows. Section 5 provides the methodological framework for these data in terms of accounting rules, valuation and accrued interest for debt securities issues to assist in this presentation.

Accounting rules related to debt securities issues

Positions and flows

5.2 International statistical standards record two basic types of data – positions and flows. Flows refer to economic actions and effects within an accounting period, while positions refer to the level of assets and liabilities at any point in time (*BPM6* 3.2). In general, economic flows are described as transactions if they record interactions between institutional units that occur by mutual agreement and involve an exchange of value (*2008 SNA* 3.51 and 3.53). Other flows are either revaluations or other changes in volume. The relationship between flows and positions for debt securities, as liabilities, is presented in the equations below.

$$Position_t = Position_{t-1} + Flows_t \quad (5.1)$$

$$Flows_t = Transactions_t + Revaluations_t + Other\ Changes\ in\ Volume_t \quad (5.2)$$

$$Transactions_t = Net\ issues_t = Gross\ issues_t - Redemptions_t \quad (5.3)$$

Where $Position_t$ is the debtor's outstanding liabilities in debt securities at the end of the accounting period t and $Position_{t-1}$ is the debtor's outstanding liabilities in debt securities at the end of the accounting period $t-1$.

$Flows_t$ are the sum of the flows of debt securities, viewed as liabilities, during the accounting period t . They comprise transactions, revaluations, and other changes in volume. $Transactions_t$ are the net transactions (issues) in debt securities during the accounting period t . They measure the difference between gross issues and redemptions during the accounting period t . Gross issues also include accrued interest, while redemptions include interest paid during the period (see also the sub-section on accrued interest).

$Revaluations_t$ are changes in the level of prices of debt securities during accounting period t .²¹

$Other\ Changes\ in\ Volume_t$ are all changes in positions between the end of accounting period $t-1$ and the end of accounting period t that are due neither to transactions nor revaluations.

²¹Revaluations are also known as holding gains and losses (*2008 SNA* 12.71).

Gross and net recording

5.3 Gross recording of financial transactions in debt securities means that the incurrence and repayment of debt securities liabilities are shown separately as gross issues and redemptions. Net recording means that gross issues of debt securities are shown net of redemptions. This *Handbook* covers aggregated data for transactions in debt securities issues, that is, gross issues and net issues.

5.4 Gross issues refer to economic events where the issuer sells newly created debt securities to creditors. An issue is considered to have occurred when the issuer transfers securities to its creditors, usually in exchange for currency or transferable deposits. Gross issues also include accrued interest.

5.5 Redemptions of debt securities include all repurchases of debt securities. They are also recorded as financial transactions, which decrease the debtor's financial liabilities (debt securities) and financial assets (currency or transferable deposits). They include all debt securities reaching their maturity date as well as early redemptions. For the creditor, the composition of financial assets changes (a decrease of holdings of debt securities and an increase of holdings of currency or transferable deposits). Redemptions also include accrued interest.

Quadruple-entry accounting and time of recording

Transactions

5.6 For an appropriate valuation and recording of accrued interest by securities issuers and holders, debt securities positions and flows need to be recorded on the basis of a principle of quadruple entry, the approach that is used to ensure consistency across accounts and sectors in international statistical standards (2008 SNA 2.52). One implication of the quadruple-entry principle is that debt securities transactions, and other flows, are recorded at the same point in time for both units involved (2008 SNA 2.54).

5.7 The general principle is that transactions between institutional units should be recorded when claims and obligations arise, transformed, or cancelled, that is, on the accrual basis (2008 SNA 2.55). In many cases, there is a delay between the actual transaction and corresponding payment or receipt, that is, on the cash basis (2008 SNA 2.56). These two different accounting approaches can result in transactions being recorded at different times.

5.8 Following the principle of quadruple entry, a transaction such as the issue or the redemption of a debt security should result in the recording of four entries, that is, two for each institutional unit (the debtor and creditor) involved in the transaction.²² For example, debt securities are issued by a non-financial corporation (the debtor) and acquired by a household (the creditor) in exchange for currency or a transferable deposit. In the financial account for the non-financial corporation, an increase in liabilities (debt securities) and an increase in assets (currency or transferable deposits) are recorded. In the financial account of the household, an increase in assets (debt securities) is offset by a decrease in assets (currency or transferable deposits), with no change in liabilities recorded.

5.9 Transactions can involve the exchange of one financial instrument for another without an exchange of currency or transferable deposits. Such operations include, for example, the conversion of debt securities into equity securities. They raise the question of whether conversions should be treated as financial transactions or other changes in volume. Within a system of “from-whom-to-whom” financial accounts, such conversions should be treated as two financial transactions, that is, as a redemption of debt securities and equity securities issues.

²²In the context of debt securities issues and redemptions, financial transactions are recorded.

Other economic flows

5.10 Not all economic flows are transactions. Other economic flows include revaluations and other changes in volume. Revaluations are changes in the level of prices of debt securities. Other changes in volume are changes in the quantity or physical characteristics of debt securities as liabilities. For debt securities, other changes in volume are all those changes in position that are due neither to transactions between institutional units nor to revaluations (2008 SNA 12.5).

5.11 Changes in the sector classification and structure of institutional units should be recorded as other changes in volume (2008 SNA 12.62 to 12.64). They may arise, for example, from corporate mergers and acquisitions.²³

Aggregation

5.12 Aggregation is the summing of individual items in a class of transactions, other flows or positions in debt securities. Aggregation in which all individual items are shown at their full value is called gross recording of debt securities, and in the case of transactions, gross issues or redemptions.

Netting

5.13 Netting is a process where accounting entries on the two sides of the account for the same transaction item and same institutional unit are offset against each other (2008 SNA 11.40). A gross approach keeps the debt securities on both the asset

side and liability side of the issuers' and holders' balance sheets. The gross approach meets the legal requirements for presentation (showing actual payments of coupon, etc.) and preserves the consistency of the presentation with market statistics. Under the net approach, the purchase by the unit of its own debt securities is recorded as a redemption of debt rather than an acquisition of assets (BPM6 8.32).

5.14 Netting should be distinguished from net recording, which as described in paragraph 5.3 refers to showing gross issues of debt securities net of redemptions. In general, netting should be avoided but this may not always be possible.

Consolidation

5.15 Consolidation refers to the elimination of positions and flows between institutional units that are grouped together in the same sector or sub-sector.²⁴ Consolidation can be performed at the level of the total economy, institutional sectors and sub-sectors.

5.16 In general, the presentation of unconsolidated debt securities data is recommended. For example, where debt securities are issued by a deposit-taking corporation and purchased by a financial leasing corporation that is within the same sector (financial corporations), unconsolidated statistics on positions and flows should include the value of the new securities issued and the redemption of these debt securities.

²³In the financial accounts, a creditor may recognise that debt securities can no longer be redeemed on account because of bankruptcy, liquidation or other factors, and remove the claims from its balance sheet. The fall in the creditor's balance sheet holdings of securities is recorded as an entry as other changes in volume. To maintain balance in the accounts, the corresponding liability must be removed from the debtor's balance sheet in the same way (2008 SNA 12.39). Write-downs that reflect the market value of debt securities are recorded as revaluations (2008 SNA 11.40).

²⁴The concept of consolidation used in business accounting involves extending the boundary to all subsidiaries, eliminating mutual equity holdings, financial links and other transactions and applying some specific extra accounting treatments. In the national accounts, consolidation involves only the second step, since the boundary for reporting is defined by the sector, sub-sector or any other grouping under consideration.

Valuation of debt securities issues

5.17 Statistics on debt securities issues should be presented at both market and nominal value. For debt securities, both values provide useful information from the perspective of monetary policy and financial stability analysis.

5.18 In the financial accounts, positions, transactions and other flows should be recorded with the same value throughout the accounts of all the institutional units involved. This means that a financial asset and its liability counterpart should be recorded for the same amount in the creditor and debtor accounts. Market prices are the basic reference for the valuation in the System of National Accounts (2008 SNA 2.59). Accordingly, this *Handbook* recommends that debt securities be presented at market values, but also recommends that positions be expressed in nominal value (although not transactions).

Market value

Transactions

5.19 Transactions in debt securities are valued at the actual price agreed upon by the institutional units involved in the transaction (2008 SNA 2.59). Under normal circumstances, the market value is the price at which debt securities are acquired or disposed of in transactions between willing parties, excluding commissions, fees, and taxes (2008 SNA 3.122), but including accrued interest.

Positions

5.20 The market value of debt securities is the value at which they might be bought in markets at the time the valuation is required. It includes accrued interest. Ideally, values observed in markets or estimated from observed market values should be used (2008 SNA 2.60).

Nominal value

5.21 The nominal value of a debt security refers to the outstanding amount the debtor owes to the creditor (2008 SNA 3.154 (b)). It reflects the sum of funds originally advanced (the issue price), plus any subsequent advances, plus any accrued interest,²⁵ less any repayments. The nominal value in domestic currency of a debt security denominated in foreign currency also includes revaluations arising from exchange rate changes (BPM6 3.88).

5.22 In practice, nominal value is often considered to be the same as face value. However, the two concepts are distinguished from each other in 2008 SNA. Face value is defined as the amount of principal to be repaid (2008 SNA 3.154 (d)). It is equivalent to the redemption price of a debt security excluding accrued interest. The *Handbook* does not recommend the presentation of debt securities at face. As stated above, the *Handbook* recommends that debt securities be presented on a market-value and nominal-value basis.

Foreign exchange revaluations

5.23 Foreign exchange revaluations reflect changes in the value of debt securities denominated in foreign currencies due to exchange rate movements. They are recorded as revaluations, separately from other changes in the market prices of debt securities.

Interest accrued on debt securities issues

5.24 Interest accrued on debt securities is the amount that the issuers of debt securities become liable to pay over a given period of time without reducing the principal

²⁵In the case of discount debt securities, accrued interest is determined by the discount that is distributed over the life of the securities.

outstanding (2008 SNA 7.112).²⁶ Interest accrued is income and also a financial transaction to the extent that the interest is accrued but not yet paid (as if the accrued interest were promptly reinvested in debt securities) (BPM6 11.49). This transaction is reversed (giving rise to a redemption of debt securities) when interest accrued is actually paid.

Debtor and creditor approaches

5.25 There are two ways to define interest for debt securities, the debtor approach and creditor approach. The debtor approach defines interest from the perspective of the issuer of debt securities, while the creditor approach defines interest from the perspective of the holder of debt securities.

5.26 International statistical standards apply the debtor approach, rather than the creditor approach, when recording accrued interest. The *Handbook* recommends following this approach by defining interest accrued as explained in paragraph 5.24.

5.27 Under the creditor approach, interest accrued reflects current market conditions and expectations. At any point in time, interest accrued is determined using the current yield to maturity (BPM6 11.50 (a) and (b)).

²⁶For example, a fixed interest rate bond is issued at 100 and pays annual fixed coupons of 10 during its life. Interest accrues of 10, even though no coupon is actually paid. The interest is considered as reinvested in the bond increasing the nominal value of the bond from 100 to 110. The coupon paid by the debtor at the end of each year is a (partial) redemption of the bond, reducing its nominal value from 110 to 100.

Interest payable by type of debt security

Bills and similar debt securities

5.28 Interest on bills and similar debt securities is measured by the discount on the bill, that is, the difference between the sum paid to the holder of the bill when it matures and the amount received at the time of issue (2008 SNA 17.257).

Bonds and debentures

5.29 For a bond issued at a discount or a premium, the difference between the redemption price and issue price constitutes interest that accrues period-by-period over the life of the bond, in the same way as for a bill (2008 SNA 17.260).

Zero-coupon bonds

5.30 Zero-coupon bonds do not entitle their holders to any income during the life of the security, but only to receive a stated fixed sum as repayment of principal on a specified date or dates. When zero-coupon bonds are issued, they are sold at a price that is lower than the price at which they are redeemed at maturity, reflecting the interest cost over the lifetime of the bond. The difference between the redemption value and issue price of a zero-coupon bond represents interest accruing continuously over the life of the security until its maturity (2008 SNA 17.261 and 17.262).

Index-linked debt securities

5.31 Following the BPM6, the *Handbook* recommends classifying all index-linked debt securities (except those linked to a foreign currency) as variable interest rate debt securities. A debt security is classified as variable interest rate if the indexation applies to both the principal and coupons (BPM6 5.113).

Section 6 Classification of Debt Securities

Introduction

6.1 Section 6 explains how debt securities statistics can be presented according to different classifications – by issuing sector and sub-sector, currency, maturity, interest rate and market. The *Handbook* also describes issues related to classification by default risk, although a specific classification scheme is not recommended for the detailed tables in Section 7 because further work is required in this area. Securitisation debt securities are described as a memorandum item, as shown in Section 7. These classifications and the memorandum item are useful for the analysis of debt securities markets from the perspective of monetary policy formulation and monitoring, financial integration, financial market regulation and financial stability.

6.2 The tables in Section 7 can be used to present statistics on debt securities issues with different classifications. The tables are designed to capture a wide range of debt securities characteristics, although only a subset of the cells in the tables might be relevant for a particular economy given the volume and structure of its debt securities issues and the regulations that govern the issuance and trade in these financial instruments.

Classification by issuing sector and sub-sector

6.3 From a monetary policy and financial stability perspective, it is important to analyse and understand the relative size of the different issuing sectors and sub-sectors, including non-residents' issues. An indication of the openness of national capital markets may also be obtained from having accurate data on the issuance activity of non-residents in domestic markets.

Resident sectors for debt securities issues

6.4 As discussed in Section 3, the *2008 SNA* groups resident institutional units into five mutually exclusive sectors – non-financial corporations, financial corporations, general government, households and non-profit institutions serving households (NPISH). The presentation tables in Section 7 show these sectors but combine households and NPISH into one group. The *Handbook* encourages this presentation of debt securities statistics.

6.5 Debt securities are predominantly issued by non-financial corporations, financial corporations and general government. Households and NPISH may be legally

entitled to issue debt securities. In the case of households, debt securities can be issued to finance dwelling purchases.

Additional sub-sectors for debt securities issues

6.6 It may also be possible to report additional items for monetary policy and financial stability analysis.

6.7 The financial corporations sector could be broken down into debt securities issued by:

- the central bank;
- other money-issuing corporations comprising the sub-sectors “deposit-taking corporations except the central bank”, and some “money market funds” (MMF);²⁷
- securitisation corporations, and
- other financial corporations, that is, financial corporations other than the central bank, other money-issuing corporations, and securitisation corporations.

6.8 The general government sector could be broken down into debt securities issued by:

- the central government, and
- other general government comprising state government, local government and social security funds.

6.9 Sometimes it is also analytically useful to aggregate debt securities issued across different statistical sectors. The public sector provides a broader coverage than the general government sector by combining debt

²⁷The money-issuing corporations sector usually covers the central bank, deposit-taking corporations except the central bank and money market funds (MMF). MMF are only included in money-issuing corporations if they issue liabilities included in the national definition of broad money.

securities issued by general government and public corporations, including the central bank.

Classification by currency

6.10 It is important to distinguish between currency of denomination and currency of settlement.²⁸ Data on the currency composition of debt securities can be important for financial stability analysis. For example, potential currency mismatches can emerge in countries with debt denominated in foreign currencies that experience sudden and large exchange rate depreciation. These countries can be vulnerable to a large increase in domestic currency-denominated debt repayments, even if the initial level of debt is not high.

Definition of domestic and foreign currencies

6.11 Domestic currency is that which is legal tender in an economy and issued by the monetary authority for that economy, that is, either that of an individual economy or, in a currency union, that of the common currency area to which the economy belongs. All other currencies are foreign currencies (*BPM6* 3.95). Hence, statistics on debt securities issues can be classified according to whether issues are denominated in domestic currency or foreign currencies. These data can be aggregated to show debt securities issued in all currencies.

Currency of denomination and currency of settlement for debt securities issues

Currency of denomination

6.12 The currency of denomination is determined by the currency in which the value of positions and flows for debt

²⁸The *Handbook* recommends that debt securities be presented on a “currency of denomination” basis only.

securities issues are fixed, as specified in the contract between the institutional units. Accordingly, all cash flows are determined using the currency of denomination and, if necessary, converted into the domestic currency for the purpose of settlement. The currency of denomination is important for distinguishing transactions and revaluations (*BPM6* 3.98).

6.13 Debt securities issues can be denominated in domestic currency or foreign currencies. A further breakdown of debt securities issues denominated in several foreign currencies may be appropriate and may vary depending on the relative importance of the individual foreign currencies to a national economy or a monetary or economic union.

6.14 Debt securities with both their principal and coupon linked to a foreign currency are classified as though they are denominated in that foreign currency (*BPM6* 11.50 (b)).

Currency of settlement

6.15 The currency of settlement may be different from the currency of denomination. The currency of settlement refers to the currency into which the value of positions and flows for debt securities are converted each time settlement occurs (*BPM6* 3.99).

Classification by maturity

6.16 This classification addresses two different concepts of maturity – short-term and long-term maturity, and original and remaining maturity. These concepts can assist in the understanding of debt securities issuance activity, the debt position of issuers and their debt servicing capacity. Statistics on debt securities issues classified by maturity are also helpful for liquidity analysis.

Short-term and long-term maturity

6.17 Debt securities can be classified as having short-term or long-term maturity. A debt security with a short-term maturity is

defined as one that is payable on demand²⁹ or in one year or less. A debt security with a long-term maturity is defined as one that is payable in more than one year or with no stated maturity (*BPM6* 5.103).

6.18 It is also possible to break down statistics on long-term debt securities issues into four sub-items:

- more than one year and up to and including two years;
- more than two years and up to and including five years;
- more than five years and up to and including ten years, and
- more than ten years.

Original maturity

6.19 Original maturity is the period from the issue date until the final contractually scheduled payment (*BPM6* 5.104 (a)). On an original maturity basis, debt securities that mature in one year or less are classified as short term, even if they are issued under long-term facilities, such as note issuing facilities (NIF). Debt securities that mature in more than one year are classified as long term. This category also covers debt securities with optional maturity dates, the last of which is more than one year away, and those with indefinite maturity dates (*2008 SNA* 11.71).

6.20 Debt securities giving the creditor an option for early redemption are classified according to the original maturity date, but additional information on payments on the basis of the earliest repayment date should also be provided (*External Debt Guide* 6.33). Debt securities in which a certain portion of the issue is retired periodically (sinking fund provision) are classified according to the earliest date that the debt security is

²⁹Payable on demand refers to a demand for payment issued by the creditor.

completely repaid. Debt securities that do not mature at all (perpetuities) are classified as long term.

Remaining (or residual) maturity

6.21 Remaining (or residual) maturity is the period from the reference date of a debt security until the final contractually scheduled payment (*BPM6* 5.104 (b)). Short-term debt securities with a remaining maturity of one year or less comprise those securities with an original maturity of one year or less and those with an original maturity of more than one year that will mature within one year.

Combining original and remaining maturity

6.22 Statistics on debt securities issues can combine measures in both original and remaining maturity terms accommodated by the following split:

- (a) short term on an original maturity basis;
- (b) long term on an original maturity basis that will mature in one year or less, and
- (c) long term on an original maturity basis that will mature in more than one year.

6.23 Item (a) can be combined with item (b) to derive debt securities due within one year, that is, short-term debt securities on a remaining maturity basis. Alternatively, item (b) can be combined with item (c) to derive long-term debt securities on an original maturity basis.

Deciding on the maturity concept for debt securities issues

Duration

6.24 When deciding whether debt securities statistics should be recorded on an original or remaining maturity basis, it is important to consider the duration concept. Duration is

the weighted average term to maturity of a debt security. It can be used to measure the impact on the value of a debt security that will result from a one percentage point change in interest rates. Unlike maturity, duration takes into account interest payments that occur throughout the life of the debt security. De facto, duration is a weighted average payment schedule.

Original versus remaining maturity

6.25 The original maturity concept is helpful in understanding issuance activity. For example, it is important to understand whether institutional units are borrowing short term or long term, and how the pattern is changing. It is likely that most countries present debt securities statistics based on this concept.

6.26 For the analysis of debt positions and debt servicing capacity, data on a remaining maturity basis may be preferred, since the concept is more closely related to duration. Given the tendency for debt securities with the same duration to have a similar yield, any differences in value are then due to the credit risk of the borrower, market liquidity, etc. Remaining maturity data are also particularly helpful for liquidity analysis.

6.27 The remaining maturity concept is recommended in this *Handbook* for long-term debt securities with a remaining maturity of one year or less, that is, item (b) above. All other data should be presented on an original maturity basis. In other words, as both original and remaining maturity measures have analytical interest, the *Handbook* encourages debt securities statistics to be presented for (a), (b), and (c) above.

Classification by interest rate

6.28 From a financial stability perspective, institutional units that issue a large share of debt securities with a variable interest rate may be exposed to more financial stress during periods of financial shocks.

Furthermore, the operation of the transmission mechanism of monetary policy may be influenced by the mix of fixed interest rate and variable interest rate debt securities. For example, if a large proportion of outstanding debt securities have a variable interest rate coupon, movements in market interest rates driven by changes to official interest rates can potentially make monetary policy more potent.

Fixed interest rate debt securities

6.29 For fixed interest rate debt securities, the contractual nominal coupon payments are fixed in terms of the currency of denomination for the life of the debt security or for a certain number of years. Therefore, from both the issuer's and holder's perspective, at the date of issue the timing and value of coupon payments and principal repayments are known. The features of such debt securities, as listed in the first column of Table 6.1, are described as common examples of fixed interest rate debt securities.

6.30 Fixed interest rate debt securities cover those listed below.

- Plain debt securities are issued and redeemed at face value.³⁰
- Debt securities issued at a discount to their face value, with the exception of zero-coupon bonds (see below), and that usually pay no coupon. For example, Treasury bills, commercial paper, promissory notes, bill acceptances, and bill endorsements.
- Deep discounted bonds have small coupon payments and are issued at a discount to face value.
- Zero-coupon bonds are single-payment debt securities with no coupon payments. The bond is sold at a discount to its face value and the

principal is repaid at maturity. Zero-coupon bonds may be created from fixed interest rate debt securities by "stripping off" the coupons, that is, by separating the coupons from the final principal payment of the security and trading them independently.

- Separate trading of registered interest and principal of securities (STRIPS), or stripped debt securities, are securities that have been transformed from a principal amount with periodic interest coupons into a series of zero-coupon bonds, whose range of maturities matches the coupon payment dates and the redemption date of the principal amount.
- Perpetual with a fixed interest rate, callable (redeemable) and puttable debt securities, and debt securities with sinking fund provision.
- Convertible bonds, usually classified as fixed interest rate debt securities, may, at the option of the issuer (or the holder), be converted into the equity of the issuer, at which point they are classified as equity securities.
- Exchangeable bonds are usually fixed interest rate securities with an embedded option allowing them to be exchanged for equity securities in a corporation other than the issuer (usually a subsidiary or company in which the issuer owns a stake) at some future date and under agreed conditions.
- Debt securities interest that is linked to the credit rating of another borrower should be classified as fixed interest rate debt securities, as credit ratings do not change continuously in response to market conditions (*BPM6* 5.111).

6.31 Fixed interest rate debt securities may also include some financial instruments that are on the borderline between debt securities and other negotiable financial instruments.

³⁰Face value is also known as par value, or simply par.

Table 6.1
Fixed interest rate debt securities

Feature	Type of debt security										
	Plain	Issued at discount or premium	Deep discount	Zero coupon	STRIPS	Perpetual	Callable	Sinking fund provision	Convertible	Exchangeable	Linked to credit rating
Issue date	Fixed	Fixed	Fixed	Fixed	Various	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Issue price	100	<100 or >100	<<100	<<100	<<100	Generally 100	<100 or >100	<100 or >100	<100 or >100	<100 or >100	<100 or >100
Redemption date	Fixed	Fixed	Fixed	Fixed	Fixed	Indefinite	Variable	Various	Fixed	Fixed	Fixed
Redemption price	100	100	100	100	100	—	100	Variable	100	100	100
Coupon payments	Fixed	Fixed	Fixed	—	—	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Coupon payment dates	Fixed	Fixed	Fixed	—	—	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Interest included in ¹	C	C & P	C & P	P	P	C	C & P	C & P	C & P	C & P	C & P
Change into equity securities	—	—	—	—	—	—	—	—	Issuer corporation	Other corporation	—

Note: "—" represents not applicable.

¹Interest included in principal payments (P); interest included in coupon payments (C).

- Equity warrant bonds are debt securities that incorporate warrants, which give the holder the option to purchase equity in the issuer or another company during a predetermined period, or at a particular date and at a fixed contract price. The exercise of the equity warrant will normally increase the total funding of the issuer because the debt is not replaced by equity but remains outstanding until the date of its redemption.³¹ The warrant may be detachable and traded separately from the debt security. As a result, two separate financial instruments can be presented – the warrant, as a financial derivative, and the bond, as a debt security.
- Subordinated bonds have a lower priority than an issuer's other bonds in the event of liquidation. The terms of issue on some debt securities in the event of liquidation require them to be repaid before subordinated debt receives any payment. Since subordinated debt securities are repayable after these debt securities have been paid, they are riskier for the holder. Subordinated bonds usually have a lower credit rating than the debt securities that are repayable sooner.
- Stapled instruments, which under their terms of issue are two or more different financial instruments (for example, ordinary equity securities and unsecured notes) coupled together for certain purposes, are usually treated as fixed interest rate debt securities and equity securities, where separately identified. However, they usually cannot be transferred separately either

in the market or as the result of an over-the-counter transaction. A parcel consisting of one equity security and one or more notes is traded in the market as though it were a single security, although conceptually the components are regarded as separate. If the components cannot be separately identified, they should be classified according to the predominant component, either as debt securities or equity securities.

Variable interest rate debt securities

6.32 Variable interest rate debt securities have their coupon or principal payments (or both) linked to a general price index for goods and services (such as the CPI – consumer price index), interest rate (such as the LIBOR – the London interbank offered rate – or a bond yield) or asset price. The reference value fluctuates in response to market conditions. In Section 7, Table 7.5 reflects these different types, with a breakdown into three sub-categories: inflation-linked, interest rate-linked, and asset price-linked. The features of variable interest rate debt securities are listed in Table 6.2.

6.33 Variable interest rate debt securities include those issued as inflation-linked bonds, and asset price-linked bonds. The redemption value of an asset price-linked bond includes those linked to the price of a commodity.

6.34 In the case of interest rate-linked debt securities, the contractual nominal coupon payments are variable and are revised periodically according to the reference interest rate. Therefore, from both the issuer's and holder's perspective, at the date of issue the timing and value of coupon payments and principal repayments are uncertain.

6.35 A specific type of interest rate-linked debt security is a variable rate note (VRN). This note adopts the standard characteristics of a variable interest rate bond. However,

³¹Equity warrant bonds may also be issued as variable interest rate convertible bonds. This is also applies for convertible bonds and exchangeable bonds.

Table 6.2

Variable interest rate debt securities

Feature	Type of debt security						Interest rate-linked
	Index-linked			Asset price-linked			
	Inflation-linked						
	Coupon only	Principal only	Coupon & Principal	Coupon only	Principal only	Coupon & Principal	
Issue date	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Issue price	<100 or >100	<100 or >100	<100 or >100	<100 or >100	<100 or >100	<100 or >100	<100 or >100
Redemption date	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Principal payments ¹	Fixed	Variable	Variable	Fixed	Variable	Variable	Fixed
Coupon payments	Variable	Fixed	Variable	Variable	Fixed	Variable	Variable
Coupon payment dates	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Interest included in ²	C & P	C & P	C & P	C & P	C & P	C & P	C variable & P

1. Principal payments are equivalent to the redemption price.

2. Interest included in principal payments (P); interest included in coupon payments (C).

whereas a standard characteristic of a variable interest rate bond is that it carries a fixed spread over a reference index, the spread over the reference interest rate on a VRN varies over time depending on the change in the perceived credit risk of the issue or issuer. VRN generally have a put option for the existing holders of notes to sell the issue back to the lead manager of the issuing syndicate at face value and at any interest payment date. For further details, see Annex 1.

Mixed interest rate debt securities

6.36 Mixed interest rate debt securities have both a fixed and variable coupon rate over their life and are classified as variable interest rate debt securities. They cover debt securities that have:

- a fixed coupon and a variable coupon at the same time;
- a fixed (or a variable) coupon until a reference point and then a variable (or a fixed) coupon from that reference point to the maturity date, or

coupon payments that are pre-fixed over the life of the debt securities but are not constant

over time. They are called stepped debt securities.

Classification by market

6.37 This classification allows an understanding of the relative importance of debt securities issues by different resident sectors and non-residents across markets. It can also support analysis of the relative attractiveness of the domestic debt securities market compared with international markets, and the impact of structural changes in debt securities markets, such as deregulation, consolidation and financial innovation. In the absence of information on the currency denomination of debt securities, data on securities issued in international markets can provide a broad indication of the domestic-foreign currency composition of debt securities issues.

Domestic and international markets

6.38 Statistics on debt securities issues can be classified according to the markets where these securities are issued – domestic or international (or both) – which would be reflected in statistics covering all markets.

This classification is particularly important for emerging market economies, where connections between the two markets are in their early stages. While institutional units that are resident in emerging market economies usually issue debt securities in their domestic market, they do not always have access to international markets. In addition to making these economies more attractive to foreign investors, the liberalisation of the financial markets of these economies allows resident units to issue securities in international markets. This would induce an inflow of foreign capital, reduce the cost of borrowing for domestic institutional units, and promote economic growth. Non-resident units may issue debt securities in emerging market economies if they are permitted.

6.39 As financial markets become more open to foreign issuers and investors, the separation between domestic and international securities markets becomes less clear. This is particularly the case for institutional units that are resident in industrialised economies. They can usually raise funds by issuing debt securities in their domestic market or international markets (or both), which would be reflected in statistics covering all markets. At the same time, non-resident institutional units can issue debt securities in the domestic market. In these cases, the borderline between domestic and international markets is becoming unclear.

6.40 The presentation of statistics on debt securities issues classified by market will depend on the two approaches described in Section 1. The guidelines presented below are based on the *External Debt Guide* 6.21.

- In the “residence of issuer” approach, debt securities issued by a resident of the same economy in which the security is issued are classified as domestic market issues, regardless of the currency of issue. All other issues are classified as those in international markets.

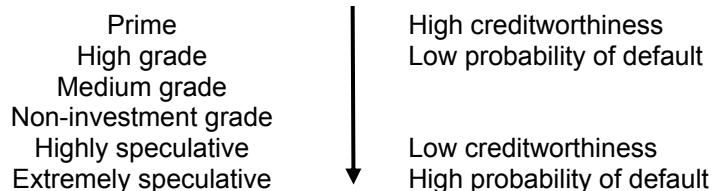
- In the “location of issue” approach, all debt securities issued in that economy either by residents or non-residents are classified as domestic market issues, regardless of the currency of issue. In this approach, debt securities issued in international markets would be excluded by definition.³²

6.41 If there is uncertainty over the market of issue, the three criteria stated below should be used in descending order of preference to determine whether a resident of an economy has issued a domestic or an international debt security (*External Debt Guide* 6.21).

- The debt security is listed on a recognised exchange in the domestic economy (domestic issue) or in a foreign economy (international security).
- The debt security has an International Security Identification Number (ISIN) with a country code the same as the legal domicile of the issuer, or is allocated a domestic security code by the domestic national numbering agency, or both (domestic security). Alternatively, the debt security has an ISIN with a country code different from the one for the country where the issuer is legally domiciled or an international security code issued by a foreign national numbering agency, or both (international security).
- The security is issued in the domestic currency (domestic issue) or in a foreign currency (international issue).

³²Where debt securities are issued in multiple markets, the presentation will depend on whether the “residence of issuer” or the “location of issue” approach is used, and the legal arrangements of the debt securities issue.

Diagram 6.1

Typical external ratings used by credit rating agencies for debt securities**Classification by default risk**

6.42 As outlined in Section 2, a qualitative feature of debt securities refers to the default risk attached to them. Due to its relevance to monetary policy and financial stability analysis, it is important to outline some aspects concerning the possibility of classifying statistics on debt securities issues by default risk. Various methods include the use of external ratings and reference yield curves. This section does not provide a single classification scheme for statistics on debt securities issues by default risk.

Debt securities ratings as provided by credit rating agencies

6.43 External ratings by credit rating agencies assess the creditworthiness of an issuer with respect to its financial obligations. They provide an indication to holders of debt securities, as well as market analysts, about the issuer's overall financial capacity and willingness to make scheduled coupon payments and principal repayments on a specific issue.

6.44 External ratings are designed by specialised national and international agencies based on risk analysis and ratings tools, which the agencies have developed. The ratings tools all use an alphabetical, ordinal structure to rate debt securities issues,

although some agencies also use an alphanumerical grading scale. Their credit quality designations cover the range from high, through medium to low, which correspond respectively to the low, medium, and high probability of default (see Diagram 6.1).

6.45 Aggregate data on debt securities issues containing information on credit ratings are valuable for a number of reasons. First, they can assist policymakers and analysts to focus on sectors (or sub-sectors) containing institutional units that issue the riskiest debt securities. Second, they also help to identify the riskiest types of debt securities with a further breakdown by sub-categories or sub-positions. Both of these reasons are important in identifying possible contagion effects from default, with consequences for market liquidity and solvency, and transmission mechanism effects to the real economy. Third, they assist financial investment decisions with respect to transparency between creditors and debtors, and promote the efficient operation of the debt securities market. Fourth, ratings information provides a measure of the state of development of domestic and international securities markets in terms of their capacity to accommodate issuers of different credit standings.

6.46 Security-by-security (SBS) databases may contribute to an analysis of discrepancies in the multiple credit ratings across agencies and the tracking of their changes. However, there are challenges with regard to reconciling these differences and developing aggregate data, such as determining appropriate weights. Furthermore, future regulatory changes may affect the governance of existing credit rating agencies and the possible development of new credit ratings.

Reference yield curves

6.47 An alternative method for comparing and classifying the default risk of debt securities issuers is to use reference yield curves. These yield curves are a tool with which to derive information on the default risk structure of debt securities issues at remaining maturity. Debt securities that have a high credit quality are those securities with the lowest yield within homogenous classes of debt securities (currency, maturity, etc.). For example, the default risk of general government debt securities issues provides a benchmark for non-general government debt securities issues since the former securities are considered the least-risky issues. This is usually reflected in yield spreads between the respective debt issues, nationally as well as across countries.

6.48 Yield spreads may therefore be indicative of the relative creditworthiness of develop a statistical classification scheme for debt securities issues by default risk. For

example, the lowest decile, or a lowest first percentile, could be used to define high credit individual issues. This could be used to quality debt securities. Again, SBS databases could facilitate the development of such yield curves and deciles.³³

Classification

6.49 Apart from external ratings and reference yield curves, other methods may exist for developing a classification scheme for default risk. The ranking of debt securities on the basis of reference yield curves could also be compared or combined with the credit ratings applied to debt securities issues by rating agencies. Unlike the previous sections, the *Handbook* does not provide a single classification scheme for default risk. Further work is needed in this area. In particular, it will be necessary to identify whether it is possible to develop a conceptually sound classification scheme for statistics on debt securities issues by default risk.

³³In statistics, a decile is any of the nine values that divide the sorted data into ten equal parts, so that each part represents one-tenth of the sample or population. Thus, the first decile cuts off the lowest 10 per cent of data.

Section 7 Detailed Presentation Tables

7.1 Stylised presentation Table 1.1 shows the link between the “residence of issuer” approach and “location of issue” approach.

7.2 The residence of issuer approach is one of the basic principles of international statistical standards, such as the *2008 SNA* and the *BPM6*. It implies that the institutional unit issuing debt securities is allocated to an economic sector and that the debt securities (as with all other liabilities) of this institutional unit are allocated to the respective sector. The debt securities outstanding are part of the balance sheet of this sector, whereas transactions in debt securities are part of the economic sector’s financial account. The residence of issuer approach presents statistics on debt securities issues as an integral part of the national accounts and the portfolio investment in the balance of payments and international investment position.

7.3 The location of issue approach, as an extension to the residence of issuer approach, may provide supplementary information to the residence of issuer approach, as it classifies – by economic sector – the debt securities issued in the domestic market. This approach can support analysis of the relative importance of financial centres. Such data can also indicate the motivation of debtors and creditors, such as the attractiveness of the domestic debt securities market to foreign investors, and possible liquidity risk.

Detailed presentation tables for statistics on debt securities issues

7.4 Section 7 outlines five possible classifications to present statistics on debt securities issues: issuer, currency, maturity, interest rate and market. Table 7.1, which is based on stylised Table 1.1, reflects these categories for debt securities issues. In addition to the five possible classifications, it shows the memorandum item “securitisation debt securities”.

7.5 Table 7.1 can also be used to cross-classify statistics on debt securities issues following the residence of issue approach and location of issue approach. The residence of issuer approach allows the presentation of statistics on debt securities issued by residents across all markets. The location of issue approach allows the presentation of statistics on debt securities issued by residents and non-residents in the domestic market.³⁴

³⁴The two approaches can also be combined. In this case, debt securities issues in international markets would also be shown separately for resident issuers, and all markets would comprise domestic and international markets where these issuers are present.

Table 7.1

Debt securities issues classified by issuer, market, currency, maturity and interest rate

Market, currency, maturity, and interest rate		Residents				Non-residents	All issuers	Location of issue
		Non-financial corporations	Financial corporations	General government	Households and NPISH			
1. Domestic market	1.1 Currency							
	1.2 Maturity							
	1.3 Interest rate							
	1.4 Memo item: securitisation debt securities							
2. International markets	2.1 Currency							
	2.2 Maturity							
	2.3 Interest rate							
	2.4 Memo item: securitisation debt securities							
3. All markets	3.1 Currency							
	3.2 Maturity							
	3.3 Interest rate							
	3.4 Memo item: securitisation debt securities							
		Residence of issuer						

7.7 The *Handbook* recommends presenting statistics on positions and transactions in Tables 7.2 to 7.5 expressed in market value. In addition, it is recommended that positions are expressed in nominal value.

Debt securities issues classified by issuer and market

7.8 Table 7.2 combines classifications by issuer and market. It shows debt securities issues broken down by issuer and market, with a split between:

- issuer into resident sectors and sub-sectors, and
- market into domestic market and international markets.

7.9 The third row for debt securities issues in all markets represents debt securities issued

by all issuers in all markets. Supplementary statistics may also be shown for debt securities issued by non-residents and all issuers in the domestic market.

7.10 Tables 7.3 to 7.6 follow the residence of issuer approach as the recommended international statistical standard. The resident institutional sectors and sub-sectors are specified according to section 6. The public sector may also be included as a memorandum item.

7.11 Tables 7.3 to 7.6 may also be used to present statistics on debt securities issues following the location of issue approach. Entries would show issues in the domestic market by residents and non-residents. For this purpose, two columns are included to present debt securities issued by non-residents and all issuers in the domestic market (as indicated by the dotted lines).

Table 7.2
Debt securities issues classified by issuer and market

Issuer Market	Residents										Memo item: public sector	Households and NPISH	Non-residents	All issuers	
	Financial corporations			General government											
	Non-financial corps.	Central bank	Other money-issuing corps.	Securitisation corps.	Other financial corps.	Central government	Other general government								
1. Domestic market															
2. International markets															
3. All markets															

Table 7.3
Debt securities issues classified by issuer and currency

Issuer Currency	Residents										Memo item: public sector	Households and NPISH	Non-residents	All issuers	
	Financial corporations			General government											
	Non-financial corps.	Central bank	Other money-issuing corps.	Securitisation corps.	Other financial corps.	Central government	Other general government								
1. Domestic currency															
2. Foreign currencies															
3. All currencies															

Table 7.4

Debt securities issues classified by issuers and maturity

Issuer Maturity	Residents											Non-residents	All issuers
	Non-financial corps.	Financial corporations			General government			Households and NPISH	Memo item: public sector				
		Central bank	Other money-issuing corps.	Securitisation corps.	Other financial corps.	Central government	Other general government						
1. Short term at original maturity													
2. Long term at original maturity													
2.1 More than one year and up to and including two years													
2.2 More than two years and up to and including five years													
2.3 More than five years and up to and including ten years													
2.4 More than ten years													
3. All maturities													
4. <i>Memo item: long term at original maturity, with a remaining maturity up to and including one year</i>													

Table 7.5

Debt securities issues classified by issuer and interest rate

Issuer Interest rate	Residents											Non-residents	All issuers
	Non-financial corps.	Financial corporations			General government			Households and NPISH	Memo item: public sector				
		Central bank	Other money-issuing corps.	Securitisation corps.	Other financial corps.	Central government	Other general government						
1. Fixed interest rate													
2. Variable interest rate													
2.1 Inflation-linked													
2.2 Interest rate-linked													
2.3 Asset price-linked													
3. All interest rates													

Debt securities issues classified by issuer and currency

7.12 Table 7.3 combines classifications by issuer and currency. It shows debt securities issues broken down by issuer and currency of denomination, with a split into domestic currency and foreign currencies. A third row for debt securities issues denominated in all currencies represents debt securities issued by issuer in all currencies.

Debt securities issues classified by issuer and maturity

7.13 Table 7.4 combines classifications by issuer and maturity. It shows debt securities issues broken down by issuer and maturity, with a split into short term and long term at original maturity, and long term broken down further into four sub-categories. Debt securities issues in all maturities represent debt securities issued by issuers in all maturities. A memorandum item shows debt securities issues with long term at original maturity, with a remaining maturity up to and including one year.

Debt securities issues classified by issuer and interest rate

7.14 Table 7.5 combines classifications by issuer and interest rate. It shows debt securities issues broken down by issuer and interest rate, with a split into fixed interest rate and variable interest rate, and variable interest rate further broken down into three sub-categories. Debt securities issues in all interest rates represent debt securities issued by issuers in all interest rates.

Debt securities issues classified by issuer: positions and flows

7.15 Another important aspect concerning debt securities statistics is that they can be

used to present positions and flows in some detail, in line with Section 5. Table 7.6 shows the position and flow relationship for debt securities issues. Expressed in market value, these statistics cover positions at the end of the previous period, flows during the current period and positions at the end of the current period. Transactions are further split into gross (gross issues and redemptions) and net (gross issues net of redemptions).

Reconciliation

7.16 To ensure consistency and accuracy, statistics on debt securities issues should be reconcilable according to the five classifications developed in this *Handbook* – issuer, market, currency, maturity and interest rate – as well as the relationship between positions and flows.

7.17 For debt securities statistics classified by issuer, the following reconciliations should hold:

- All issuers = resident sectors + non-residents
- Resident sectors = Non-financial corporations + Financial corporations + General government + Households and NPISH
- Financial corporations = Central bank + Other money-issuing corporations + Securitisation corporations + Other financial corporations
- General government = Central government + Other general government

7.18 For debt securities statistics classified by market, the following reconciliation should hold:

- All markets = Domestic market + International markets

7.19 For debt securities statistics classified by currency, the following reconciliation should hold:

Table 7.6
Debt securities issues classified by issuer: positions and flows

Issuer	Residents							Memo item: public sector	Non-residents	All issuers
	Non-financial corps.	Financial corporations			General government		Households and NPISH			
Positions and flows	Central bank	Other money-issuing corps.	Securitisation corps.	Other financial corps.	Central government	Other general government				
1. Position at end of previous period										
2. Issues during current period										
2.1 Net issues (gross issues net of redemptions)										
2.2 Gross issues										
2.3 Redemptions										
3. Revaluations during current period										
4. Other changes in volume during current period										
5. Position at end of current period										

- All currencies = Domestic currency + Foreign currencies

7.20 For debt securities statistics classified by maturity, the following reconciliations should hold:

- All maturities = Short term at original maturity + Long term at original maturity
- Long term at original maturity = More than one year and up to and including two years + More than two years and up to and including five years + More than five years and up to and including ten years + More than ten years
- Short term at remaining maturity = Short term at original maturity + Long term at original maturity with a remaining maturity up to and including one year

7.21 For debt securities statistics classified by interest rate, the following reconciliations should hold:

- All interest rates = Fixed interest rate + Variable interest rate
- Variable interest rate = Inflation-linked + Interest rate-linked + Asset price-linked

7.22 For position and flow debt securities statistics expressed in market

value, the following reconciliations should hold:

- Net issues during current period = Gross issues during current period - Redemptions during current period
- Position at end of current period = Position at end of previous period + Transactions during current period + Revaluations during current period + Other changes in volume during current period

Challenges

7.23 These tables facilitate comparability and consistency with international statistical standards and contain information that countries may eventually wish to include in their national presentation of statistics on debt securities issues. As indicated above, the publication of this *Handbook* may be followed up with compilation guidelines. One challenge will be to ensure consistency between the various presentation tables and document the statistics with metadata (see Section 8). Of particular interest to compilers are the advantages and disadvantages of developing SBS databases to facilitate the preparation of data along the lines indicated in the detailed presentation in this section. The arguments are briefly reviewed in Annex 4.

Section 8 Metadata

8.1 Section 8 presents guidelines on metadata for debt securities statistics. These metadata are complementary to the statistics presented in the tables in Section 7. While quantitative information is useful for assessing the financing activity of residents and non-residents across debt securities markets, it is not sufficient by itself to provide a comprehensive analysis, particularly when comparing national data and constructing global aggregates.

8.2 To properly assess debt securities markets and produce comparable statistics, additional information is required. This reflects, among other things, the range of data sources used to construct debt securities statistics, the various accounting rules under which the data can be produced and the regulations governing the issue of debt securities.

Metadata for debt securities statistics

8.3 There are no specific international guidelines for metadata on debt securities statistics. This *Handbook* represents a first attempt to fill this gap.

8.4 This section encourages the presentation of three groups of statistical metadata. The first group is specific to debt securities statistics and covers information on the regulatory and supervisory environment in which debt securities are issued in domestic and international markets, as well as about market arrangements. Two additional groups of metadata,³⁵ which are shared by several

³⁵The IMF has developed the Data Quality Assessment Framework (DQAF), which covers several metadata items that are listed among the two groups of statistical metadata that are not

types of statistics, are also used to accompany debt securities statistics and cover:

- statistical metadata items that are shared by all financial statistics, and hence by debt securities statistics, and
- general statistical metadata items shared by all types of statistics.

8.5 Any type of metadata can be specific to individual series or can be attached to a whole group of statistical series. An example of metadata for one debt securities time series is shown in Annex 5. It demonstrates the type of information that can be included in metadata for debt securities statistics.

Specific statistical metadata items for debt securities statistics

Regulatory and supervisory environment

8.6 Each country has developed its own set of regulations governing the issue of debt securities. These regulations are designed to satisfy specific national requirements that have evolved over time and are developed and monitored by a range of national agencies. To enhance the comparability of debt securities statistics, it is crucial that a

specific to the debt securities statistics. The DQAF focuses on some features of the governance of authorities that produce statistics, as well as the processes to produce statistical indicators and the qualities of these indicators. Based on the United Nations Fundamental Principles of Official Statistics, it is the product of an extensive consultation with national and international statistical authorities and data users.

basic set of information on the regulatory environment is presented with the quantitative statistics. Metadata on the regulatory environment could include:

- main domestic and international regulations governing the operation of debt securities markets;
- names of the regulatory organisations responsible for governing debt securities markets;
- listing and numbering requirements of issuers of debt securities;
- disclosure requirements for issuers of debt securities, and
- accounting rules for recording the issuing and trading of debt securities.

Market arrangements

8.7 The coverage of debt securities statistics may also vary across economies due to differences in market operations and arrangements. Metadata on market information could include:

- trading arrangements for debt securities;
- clearing arrangements for debt securities, and
- settlement arrangements for debt securities.

Statistical metadata items shared by all financial statistics

8.8 In addition to the corresponding specific statistical metadata items, debt securities statistics should also take advantage of metadata that are already used in existing databases containing financial statistics. In the metadata listed below, each statistical item is followed by the categories that are recommended by these guidelines.

8.9 Metadata for debt securities statistics should include information relating to the classifications in the detailed tables in Section 7, including:

- issuer sector: all sectors, non-financial corporations; financial corporations; general government; households and NPISH, or non-residents;
- issue currency: all currencies, domestic currency, or foreign currencies;
- issue market: all markets, domestic market, or international markets;
- maturity: all maturities, short-term maturity, or long-term maturity;
- term to maturity: original maturity, or remaining maturity;
- interest rate: all interest rates, fixed interest rate, or variable interest rate, and
- variable interest: all variable interest rates, inflation-linked, interest rate-linked, or asset price-linked.

8.10 Metadata for debt securities statistics should also include information relating to valuation and accounting rules, including:

- valuation: nominal value or market value;
- recording basis: accrual basis;
- grossing / netting: gross or net;
- measure: position or flows (transactions – gross issues or redemptions; revaluations; other changes in volume), and
- accounting system: quadruple-entry bookkeeping.

General statistical metadata items shared by all types of statistics

8.11 Metadata for debt securities statistics should also include information relating to the features of the statistics that are common to other groups of series, including, among others:

- title;
- unit of measure;
- frequency;

- unit multiplier;
- decimals;
- seasonal adjustment;
- collection reference period;
- start date;
- coverage;
- breaks;
- data source;
- methodology;
- timeliness;
- revision procedure, and
- contact details.

Annex 1 Structured Debt Securities

A1.1 As outlined in Section 2, structured debt securities combine features of different financial instruments. They form part of a broader group of financial instruments called structured securities. Beyond structured securities, other financial instruments may exhibit features of a structured product, such as a structured deposit that combines characteristics of a deposit and a financial derivative.

A1.2 Given the many possible combinations of financial instruments, a wide range of structured securities has evolved over time. This partly explains why, hitherto, there have been no standard international definitions for structured securities and structured debt securities. This annex fills the gap by providing broad definitions of these financial instruments. It also lists criteria that can be used to determine whether financial instruments should be classified as debt securities and hence included in statistics on debt securities issues.

Definition of a structured security

A1.3 Broadly defined, a structured security is a security derived from, or based on, a single security or financial derivative, a basket of securities or financial derivatives, an index, a commodity or a foreign currency.

Criteria for structured securities

A1.4 The features of structured securities can be used to specify five criteria, which are outlined below.

- The *degree of principal at risk* may be (a) protected and returned at maturity, regardless of the performance of the reference financial instrument; (b) exposed to losses limited to less than the full principal; (c) fully at risk subject to a level of initial loss protection, or (d) fully at risk.
- Variation in *investment returns* allows six different types of structured securities to be distinguished: (a) a “synthetic convertible”, where the investor receives a coupon plus potential appreciation in the underlying principal; (b) a “reverse convertible”, where the investor receives a coupon and is exposed to potential depreciation in the underlying principal; (c) a “dynamic allocation”, where the investment is algorithmically or dynamically allocated between assets during the life of the investment; (d) a “periodic capped”, where the investment return is based on the sum of periodically measured returns in the underlying principal; (e) a “target return”, where the investment is terminated once a certain return on the investment has been reached, and (f) a “synthetic exposure”, where there is an economically similar investment to investing directly in the underlying principal.
- *Participation* characterises whether the return is (a) based on the initial and the final underlying levels – it does not

include averaging over more than 10 per cent of the term of the investment and the participation rate is fixed on the pricing date; (b) based on a periodic averaging for more than 10 per cent of the term of the investment – the participation rate is fixed on the pricing date; (c) not fixed on the pricing date, but dependent on changes in the underlying principal, or (d) based on the change in the underlying principal with a ratio greater than one.

- *Type of coupon* might be (a) variable, depending on the change in the underlying principal; (b) fixed and set on the pricing date, or (c) a minimum return in excess of the principal amount and set on the pricing date.
- *Investment* may be called from the investor (a) at the issuer's option (callable), or (b) if a predetermined movement in the underlying principal occurs (auto-callable).

A1.5 Table A1.1 combines the five criteria for classifying structured securities. The degree of principal at risk criterion needs to be determined, as well as one of the remaining four criteria.

Definition of a structured debt security

A1.6 Structured debt securities are defined as a subset of structured securities. Structured debt securities typically combine a debt security, or a basket of debt securities, with a financial derivative, or a basket of financial derivatives. These financial derivatives are typically embedded and therefore inseparable from the debt securities. Financial instruments in which the debt security component and financial derivative component are separable from each other should be classified as separate financial instruments.

A1.7 Debt securities with embedded financial derivatives are classified as debt securities in cases where the debt security and financial derivative components cannot be separated and the debt security is the primary characteristic (*BPM6* 5.83 (d)).

A1.8 An example of a structured debt security is a CLN that combines a credit derivative and a conventional bond.³⁶ Another example is a structured variable rate note, as a variation of a standard variable rate bond whose coupon payment is periodically reset by reference to an independent interest rate index such as LIBOR. The structured issue includes a derivative that allows the coupon calculation to be tailored to meet investors' interest rate expectations. For example, there may be an interest rate collar or band. A third example is a variable rate note that has a put option for the holder to sell the issue back.³⁷

Types of structured debt securities

A1.9 Using the degree of principal at risk as a primary criterion, and the type of investment return and participation as secondary criteria, four types of structured debt securities can be identified. Each type is described below.

- *Principal protected products* are characterised in a way that the capital initially invested is guaranteed from the investor's point of view. These products offer the full downside protection of a debt security while having the upside potential of an equity security. Investors typically give up a portion of the equity security appreciation in exchange for principal protection. As such, products that usually combine a debt security with one or more options should be classified as debt securities.

³⁶See paragraph 4.9.

³⁷See paragraph 6.35.

Table A1.1

Features of structured securities

		Degree of principal at risk			
		Protected	Partly protected	Fully at risk subject to a level of initial loss projection	Fully at risk
Investment return	Synthetic convertible Reverse convertible Dynamic allocation Periodic capped Target return Synthetic exposure				
Participation	Straight Averaging Variable Enhanced				
Type of coupon	Variable Fixed Minimum				
Type of call	Callable Auto-callable				

- *Yield-enhanced products* are designed to achieve a maximum return on investment. Accordingly, the principal is only partially protected, buffered at risk or fully at risk. Such products offer a greater upside potential than principal-protected products but do not guarantee the full return of principal. They are partly exposed to any decline in the underlying investment below a buffer zone. Such products typically combine a debt security and a put or call option. They should be classified as debt securities.
- *Participation products* derive their value from different types of securities. Depending on the underlying securities, these products should be classified as debt securities, equity securities, or investment fund shares or units.
- *Leveraged products* with a large risk compared with the initial investment combine an investment in an underlying security with a future or option. Even if the initial investment is small compared with the expected risk, leverage products should be classified as debt securities.

Annex 2 Islamic Debt Securities

Islamic finance

A2.1 Islamic finance is governed by Islamic rules and principles (Sharī'ah), which, among other things, prohibit usurious payment (Riba), including predetermined returns on borrowed funds for specific terms. The Sharī'ah also forbids investment in businesses that provide goods and services considered contrary to its principles (Haraam), such as gambling. Nonetheless, Islamic finance encourages trading and business, mainly through risk and profit sharing participation in permitted activities.

A2.2 In view of the prohibition of Riba, Islamic finance uses financial instruments that either:

- are backed by returns from a real asset and earn a variable rate of return tied to the performance of the asset, or
- offer returns that are unspecified before the investment is made but shared based on a pre-agreed ratio on actual earnings.

A2.3 Islamic finance has progressed and expanded its business activities from offering basic alternatives to conventional interest-bearing accounts and loans to encompass Islamic capital markets and Islamic insurance services (Takaful).³⁸

³⁸Several Islamic banking products, such as the Profit Sharing Investment Account (PSIA), have features of a mutual fund. This indicates that the scope of services available in Islamic finance extends beyond the provision of a single industry product. The cross-sector nature of Islamic finance, however, has created some uncertainties

Existing international statistical standards

A2.4 The 2008 *SNA* classification scheme for financial instruments can provide additional detail to include special categories for statistics on Islamic financial instruments. The *MFSM* indicates that Islamic debt securities consist of various investment participation certificates that have the characteristics of negotiable securities and are not investments in the permanent capital of the issuer. Included are most negotiable investment certificates recorded as liabilities of the issuer.

Sukūk

A2.5 In Muslim and non-Muslim countries, institutional units issue Sharī'ah-compliant participation certificates or securities, frequently referred to as Sukūk. Sukūk represent a proportional undivided ownership right to tangible assets, a pool of assets, or the assets of a specific project or investment activity. According to the Islamic Financial Services Board (IFSB), Sukūk differ from conventional interest-based debt securities in a number of ways.

- In the case of asset-backed Sukūk, the underlying asset has to be Sharī'ah compliant. Furthermore, funds raised through the issuance of Sukūk should be applied only to permissible (Halal) assets, projects or businesses. These would require a Sharī'ah Board to

in classifying products as either debt instruments or equity securities.

advise and supervise Shari'ah compliance aspects of the Sukūk.

- The tradability of Sukūk is dependent on their structure, as the Shari'ah generally prohibits the sale of debt at a discount. For example, one of the mechanisms to trade Sukūk at a variable price is when the Sukūk relies on a lease structure (Ijārah³⁹) where the lease rentals can be changed or revised from time to time.

Criteria for distinguishing Islamic debt securities and equity securities

A2.6 There are two categories of criteria that distinguish Islamic debt securities from equity securities. The first category comprises criteria that are used to differentiate conventional debt securities and equity securities.

- A debt security represents indebtedness or borrowing by the issuer, whereas an equity security represents partial ownership in the issuing corporation.
- A debt security holder has first claim, ahead of equity holders, in the event of liquidation of a corporation.
- A debt security offers a holder a fixed or variable rate of return over its life and the principal at redemption, whereas an equity security may offer its holder a variable dividend depending on the profitability of the issuing corporation.
- A debt security (except a perpetual debt security) usually has a maturity date, whereas there is no maturity date for an equity security.

³⁹An Ijārah contract refers to a contract to lease a specified asset for an agreed period against specified instalments of lease rental.

- A debt security is usually rated for the risk of credit default, whereas an equity security is not.
- A debt security is usually issued and exchanged in the over-the-counter market, whereas an equity security is usually issued and its ownership transferred on an exchange.

A2.7 The second category comprises additional criteria that are used to distinguish Islamic debt securities and Islamic equity securities.

- All Islamic equity securities are negotiable in the secondary market, but depending on the nature of the contract, not all Sukūk are negotiable. For example, Murābahah⁴⁰ are based on a cost-plus contract and are usually not transferable, since the Shari'ah rules and principles prohibit the sale of debt at a discount.
- The credit rating of Sukūk that is backed by a guarantee must ensure that the institutional unit providing the guarantee is not related to the issuer. In this case, the Sukūk issuer is allowed to apply a third-party guarantee on the capital invested under the principles of Mudārabah⁴¹ or Mushārahah.⁴²

⁴⁰A Murābahah contract refers to a contract to sell a specified asset at an agreed profit margin plus cost (selling price), where the cost and profit margin are disclosed. The asset must be under complete ownership of the seller.

⁴¹A Mudārabah is a partnership contract between the capital provider (Rabbu al-Māl) and an entrepreneur (Muḍārib) in which the capital provider contributes capital to an enterprise or activity that is to be managed by the entrepreneur. Profits generated by the enterprise or activity are shared in accordance with the percentage specified in the contract, while losses are to be borne solely by the capital provider unless the losses are due to the entrepreneur's misconduct, negligence or breach of contractual terms.

- Equity securities issued by corporations that conform to specific Shari’ah criteria can be classified as Shari’ah compliant. In contrast, conventional debt securities are classified as non-Shari’ah compliant, hence the need for Sukūk.
- Equity securities have the risk of becoming Shari’ah non-compliant if the corporation enters into new ventures or engages in transactions that breach the criteria set under Shari’ah rules and principles.

Securitisation structures for Sukūk issues

A2.8 The IFSB suggests that there are two broad securitisation structures for Sukūk issues.

- A “pay-through”⁴³ Sukūk structure, where the Sukūk issuer purchases assets from the originator, issues the Sukūk to investors to finance the purchase of assets, and leases the assets back to the originator on behalf of the Sukūk investors. Normally, the assets will be returned to the originator on maturity of the Sukūk

⁴²A Mushārah is a partnership contract in which the partners (Shuraka’) agree to contribute capital to an enterprise, whether existing or new, or towards the ownership of an asset, either on a temporary or permanent basis. Profits generated by the enterprise or asset are shared in accordance with percentage specified in the Mushārah agreement, while losses are shared in proportion to each partner’s share of capital.

⁴³A “pay-through” securitisation structure derives its name from the fact that payments to investors are directed through a securitisation corporation that does not strictly pay the investors only when the receivables are collected by it, but keeps paying on the stipulated dates irrespective of the collection dates.

through a repurchase or sale-and-leaseback transaction.

- A “pass-through”⁴⁴ Sukūk structure, where a Sukūk-issuing institutional unit that is separate from the originator purchases assets from the originator, issues the Sukūk to investors to finance the purchase of assets, and packages the Sukūk investors into different pools. The pools that the investors are in may affect the distribution of returns.

A2.9 In many jurisdictions, including some in which Sukūk issues take place, there may be legal obstacles to setting up an appropriate type of securitisation corporation. This is especially important for risk mitigation and credit enhancement purposes where a securitisation corporation needs to be “bankruptcy remote” from the originator. In such legal environments, it may not be possible to transfer beneficial title to the assets to the investors, or to ensure that the investors are able to exercise these rights (for example, to repossess Ijārah leased assets) in case of default. In such circumstances, it is not feasible to create a structure for issuing non-recourse securitisation debt securities.

A2.10 The assets in Sukūk securitisation structures must comply with Shari’ah rules and principles. The underlying assets to be securitised generally comprise properties that generate lease incomes. However, the underlying assets may also combine a portfolio of assets comprising different categories of contracts, such as Ijārah leased

⁴⁴A “pass-through” securitisation structure derives its name from the fact the securitisation corporation passes payments to the investors in the same periods and subject to the same fluctuations as those applicable in the actual receivables.

assets, Murābahah or Salam receivables,⁴⁵ Istisnā⁴⁶ assets, or equity ownership (Mushārahah or Mudārahah). While sales-based Sukūk securitisation structures, such as Murābahah and Salam, are not negotiable, the latter may be combined in a pool with other negotiable contracts, such as Ijārah, in order to design a negotiable Sukūk, provided that the proportion of other tradable contracts is not less than a certain acceptable ratio. Business ventures organised as Mushārahah or Mudārahah partnerships may also be securitised, resulting in Sukūk that are negotiable.

Islamic debt securities classification

A2.11 The sector and sub-sector classifications in existing international statistical standards, such as *2008 SNA*, also apply to Islamic debt securities. Institutional units in the following sectors and sub-sectors usually issue Islamic debt securities: general government, financial corporations (including deposit-taking corporations and the central bank) and non-financial corporations. The IFSB also suggests that Sukūk can be classified by type of underlying contract, such as Murābahah, Ijārah, Salam,

⁴⁵A Salam contract refers to a contract to purchase an asset where the price, quantity and quality are specified to be delivered in the future.

⁴⁶An Istisnā contract refers to a contract to order the manufacture of an asset according to the buyer's specifications at a predetermined selling price. The payment of the price and delivery of the asset will be on a specified future date.

Istisnā, Mushārahah, Mudārahah, and Wakalah.⁴⁷

A2.12 Most of the other classifications described for conventional debt securities, that is, currency, maturity and market, may also be applied to Islamic debt securities.

A2.13 With regard to classification by interest rate, as noted earlier, Sharī'ah rules and principles prohibit usurious payment (Riba), including predetermined returns on borrowed funds for specific terms. Furthermore, some Sukūk structures, such as Mushārahah or Mudārahah, may not reflect the exact variation in the real return from the business venture. Therefore, the returns cannot be predetermined at the time of issue. This situation makes the pricing of these securities difficult, as does the lack of benchmark profit rates and the diverse types of Sukūk securitisation structures. Thus, in order for the Sukūk pricing mechanism to be efficient and credible, further initiatives have to be undertaken to develop benchmark indicators. For example, if the Sukūk issue is based on the Ijārah principle, where a property is used as its underlying asset, the actual rate of return on the underlying asset may be used to determine the rate of return of the Sukūk. The price of the Sukūk would then fluctuate in line with the supply and demand in the market for that underlying asset.

⁴⁷Under Wakalah, the holder appoints the beneficiary of funds to an agent to perform certain business operations. Depending on the underlying assets, these contracts are negotiable.

Annex 3 Debt Securities: Reconciling Market Value with Nominal Value

A3.1 Annex 3 illustrates the relationship between market value and nominal value for positions in debt securities and the recording of the accrual and payment of interest for different types of debt securities, namely (i) a fixed interest rate bond issued at par; (ii) a fixed interest rate bond issued at a discount; (iii) a zero-coupon bond; and (iv) two types of index-linked bonds.

Market value and nominal value

A3.2 **Market valuation** is the key principle adopted by international statistical standards (2008 *SNA* 2.59 and *BPM6* 8.12) for valuing transactions and positions in debt securities. As described in paragraphs 5.19 and 5.20 of the *Handbook*, the market value is that at which debt securities are acquired or disposed of, between willing parties, on the basis of commercial considerations only, excluding commissions, fees and taxes. In determining market values, trading parties also take account of accrued interest.

A3.3 **Nominal valuation** of debt securities reflects the sum of funds originally advanced, plus any subsequent advances, less any repayments, plus any accrued interest.^{48,49} Nominal value is often

⁴⁸The nominal value in domestic currency of a debt security denominated in foreign currency also includes revaluations arising from exchange rate changes (see paragraph 5.22).

mistakenly considered to be the same as face value. The *Handbook* does not recommend the presentation of debt securities at face value, but rather the use of nominal and, in particular, market value.

A3.4 At any specific point in time, the market value of a debt security may deviate from its nominal value due to revaluations arising from market price changes. Movements in market prices arise from general market conditions, such as changes in the market rate of interest;⁵⁰ specific circumstances, such as changes in the perceived creditworthiness of the issuer; and changes in general market liquidity and in that specific to the debt security.

A3.5 Thus, the following basic equation applies to **positions in debt securities**:

$$\begin{aligned} \text{Market value} = & \text{Nominal value} \\ & + \text{Revaluations arising} \\ & \text{from market price} \\ & \text{changes} \end{aligned}$$

⁴⁹For debt securities linked to a narrow index, the nominal value can also include holding gains or losses arising from movements in the index (see *BPM6*, paragraph 11.61 (b)).

⁵⁰There is an inverse relationship between market interest rates and the market price of a fixed interest rate bond, because of the effect of the market interest rate on the net present value of the future cash payments on the debt security. When the market interest rate falls, the market value of a fixed interest rate bond increases, and vice versa.

Table A3.1

A fixed interest rate bond issued at par

Issue price: 1,000; annual coupon payments: 100; original maturity: 5 years; redemption price: 1,000.

a. Stocks and flows for the first year of the life of the bond

	1-Jan.	31-Mar.	30-June	30-Sep.	31-Dec.
Nominal value before coupon payment	1,000.0	1,024.1	1,048.8	1,074.1	1,100.0
after coupon payment at year-end					1,000.0
Accrued interest		24.1	48.8	74.1	100.0
Coupon payment					-100.0
Market value	1,000.0	963.4	1,081.2	1,175.7	969.0
Revaluations arising from market price changes (cumulative)		-60.7	32.4	101.6	-31.0

b. Market value and its changes during the first year of the life of the bond

Market value at beginning of year	1,000.0
Transactions	
Accrued interest	100.0
Coupon payment	-100.0
Revaluations arising from market price changes	-31.0
Market value at year-end	969.0

c. Stocks and flows during the life of the bond

	Start year 1	End year 1	End year 2	End year 3	End year 4	End year 5
Nominal value before coupon payment	1,000.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0
after coupon payment at year-end		1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Accrued interest		100.0	100.0	100.0	100.0	100.0
Coupon payment		-100.0	-100.0	-100.0	-100.0	-100.0
Market value	1,000.0	969.0	1,025.3	1,054.2	982.1	1,000.0
Revaluations arising from market price changes		-31.0	25.3	54.2	-17.9	0.0

(i) A fixed interest rate bond issued at par

A3.6 A fixed interest rate bond issued at par (1,000) at the beginning of the first year is repayable at maturity in five years and pays fixed coupons of 100 at the end of each year of its life. Interest accrues on the bond throughout the year and is recorded as being reinvested in the bond, increasing its nominal value from 1,000 to 1,100 at the end of the year, before the coupon is paid. Coupon payments on the existing fixed interest rate bond will not change, although the current market interest rate may change.

A3.7 At issue, the nominal value and the market value are both equal to 1,000. At the end of each year, interest of 100 has accrued and is paid by the bond issuer to the bond holder. The coupon payment of 100 by the debtor at the end of the year is treated as a (partial) redemption of the bond, reducing its nominal value from 1,100 to 1,000.

A3.8 To illustrate the relationship between market value and nominal value and the recording of the flows associated with each of them, Table A3.1 presents (a) the stocks and flows (transactions and revaluations) for the first year of the life of the bond, at the

end of each quarter; (b) the market value and related flows during the first year of the life of the bond; and (c) the annual stocks and flows during the life of the bond.

(ii) A fixed interest rate bond issued below par

A3.9 In this second example, a five-year fixed interest rate bond repayable at maturity is issued at a discount (below par, at 900) and pays annual fixed coupons of 73.6 during its life, which, because of the discount, correspond to a 10% rate of interest. The bond accrues annually two types of interest: (a) a coupon of 73.6; and (b) an annual discount, which is calculated

as 19.2 for the first year. At the end of the first year, interest of 92.8 has accrued, but only 73.6 of this accrued interest is paid to the bond holder. This reduces the principal amount outstanding, in nominal value terms, from 992.8 to 919.2. The accrued discount of 100 is only paid at the end of the fifth year as part of the redemption price.

A3.10 As in the previous example, Table A3.2 presents (a) the stocks and flows for the first year of the life of the bond; (b) the market value and related flows during the first year of the life of the bond; and (c) the annual stocks and flows during the life of the bond.

Table A3.2

A fixed interest rate bond issued at discount

Issue price: 900; annual coupon payments: 73.6; discount payment at redemption; original maturity: 5 years; redemption price: 1,000.

a. Stocks and flows for the first year of the life of the bond

	1-Jan.	31-Mar.	30-June	30-Sep.	31-Dec.
Nominal value before coupon payment	900.0	922.7	945.7	969.1	992.8
after coupon payment at year-end					919.2
Accrued interest due to coupon		17.9	36.2	54.7	73.6
due to discount		4.8	9.5	14.3	19.2
Coupon payment					-73.6
Market value	900.0	864.7	974.8	1,062.9	887.1
Revaluations arising from market price changes (cumulative)		-58.0	29.1	93.8	-32.1

b. Market value and its changes during the first year of the life of the bond

Market value at beginning of year	900.0
Transactions	
Accrued interest due to coupon	73.6
Accrued interest due to discount	19.2
Coupon payment	-73.6
Revaluations arising from market price changes	-32.1
Market value at year-end	887.1

Table A3.2 (concluded)

c. Stocks and flows during the life of the bond

	Start year 1	End year 1	End year 2	End year 3	End year 4	End year 5
Nominal value before coupon payment	900.0	992.8	1,012.4	1,032.4	1,052.8	1,073.6
after coupon payment		919.2	938.7	958.7	979.1	1,000.0
Accrued interest due to coupon		73.6	73.6	73.6	73.6	73.6
due to discount		19.2	38.7	58.7	79.1	100.0
Coupon payment		-73.6	-73.6	-73.6	-73.6	-73.6
Market value	900.0	887.1	958.5	1,006.5	958.6	1,000.0
Revaluations arising from market price changes		-32.1	19.8	47.8	-20.5	0.0

(iii) A zero-coupon bond

A3.11 In the third example, a zero-coupon bond is issued which, by definition, pays no coupons during its life. The bond has a redemption price of 1,000 and an issue price of 620.9. The latter is the present value as at issuance of the final payment at the end of the fifth year, when discounted (on an annual basis) at the current market interest rate of 10%.

A3.12 The only transactions to be recorded for this kind of bond, after its issuance, are the accruing of the discount throughout its life and the payment of the principal at maturity. Changes in market

interest rates will affect the bond's market value in the same direction as in the previous two cases, but with amplified effects owing to the longer duration of the bond.

A3.13 Table A3.3 presents (a) the stocks and flows for the first year of the life of the bond; (b) the market value and related flows during the first year of the life of the bond; and (c) the annual stocks and flows during the life of the bond. At the end of the life of the bond, a transaction of 1,000 is recorded, corresponding to the repayment of 620.9 of principal and the payment of 379.1 of accrued interest.

Table A3.3

A zero-coupon bond

Issue price: 620.9; implicit rate of return: 10% per annum; original maturity: 5 years; redemption price: 1,000

a. Stocks and flows for the first year of the life of the bond

	1-Jan.	31-Mar.	30-June	30-Sep.	31-Dec.
Nominal value	620.9	635.9	651.2	666.9	683.0
Accrued interest due to discount		15.0	30.3	46.0	62.1
Market value	620.9	588.4	676.6	746.8	658.7
Revaluations arising from market price changes (cumulative)		-47.5	25.4	79.9	-24.3

Table A3.3 (concluded)

b. Market value and its changes during the first year of the life of the bond

Market value at beginning of year	620.9
Transactions	
Accrued interest due to discount	62.1
Coupon payment	0.0
Revaluations arising from market price changes	-24.3
Market value at year-end	658.7

c. Stocks and flows during the life of the bond

	Start year 1	End year 1	End year 2	End year 3	End year 4	End year 5
Nominal value	620.9	683.0	751.3	826.4	909.1	1,000.0
Accrued interest due to discount		62.1	130.4	205.5	288.2	379.1
Market value	620.9	658.7	772.2	873.4	892.9	1,000.0
Revaluations arising from market price changes		-24.3	20.9	47.0	-16.2	0.0

(iv) Index-linked bonds**(a) Linked to the consumer price index**

A3.14 In the fourth example, an index-linked bond, repayable at maturity in five years, with annual coupon payments of 50 (5%) on a principal of 1,000, is indexed to the consumer price index (CPI). The inflation expected over the life of the bond is assumed to be the inflation observed during the last 12 months. Changes in the CPI will affect the market value of the security through changes in its expected redemption price, discounted at the current market interest rate. The same market interest rate and market conditions as in the previous three examples apply to the case of this index-linked bond. At the time of issuance the increase in the CPI during the previous 12 months is 5.5%. The bond is issued at par, with nominal value and market value equal to 1,000.

A3.15 Table A3.4 presents (a) the stocks and flows for the first year of the life of the bond; (b) the market value and related flows during the first year of the life of the bond; and (c) the annual stocks and flows during the life of the bond. As can be seen in this table, the nominal value of the bond increases *pari passu* with observed inflation, while its market value also reflects expected inflation and displays the same inverse relationship with the market interest rate as in the other examples. As the bond is linked to a broad index, changes in the value of the bond due to indexation are recorded as accrued interest, i.e. as a transaction and not as a revaluation, while changes in its market value are recorded as revaluations.

Table A3.4

A bond indexed to the CPI

Issue price: 1,000; annual coupon payments: 50; original maturity: 5 years; redemption price: 1,000; indexed to the CPI.

a. Stocks and flows for the first year of the life of the bond

	1-Jan.	31-Mar.	30-June	30-Sep.	31-Dec.
Nominal value before coupon payment	1,000.0	1,022.1	1,047.0	1,082.0	1,120.0
after coupon payment at year-end					1,070.0
Accrued interest due to coupon		12.3	24.7	37.3	50.0
due to indexation		9.9	22.3	44.7	70.0
Coupon payment					-50.0
Market value	1,000.0	880.8	1,024.2	1,203.5	1,079.1
Revaluations arising from market price changes (cumulative)		-141.3	-22.8	121.5	9.1
CPI (12-month change, %)	5.5	4.0	4.5	6.0	7.0
CPI (index)	100.0	101.0	102.2	104.5	107.0

b. Market value and its changes during the first year of the life of the bond

Market value at beginning of year	1,000.0
Transactions	
Accrued interest due to coupon	50.0
Accrued interest due to indexation	70.0
Coupon payment	-50.0
Revaluations arising from market price changes	9.1
Market value at year-end	1,079.1

c. Stocks and flows during the life of the bond

	Start year 1	End year 1	End year 2	End year 3	End year 4	End year 5
Nominal value before coupon payment	1,000.0	1,120.0	1,184.2	1,240.9	1,294.5	1,344.3
after coupon payment		1,070.0	1,134.2	1,190.9	1,244.5	1,294.3
Accrued interest due to coupon		50.0	50.0	50.0	50.0	50.0
due to indexation		70.0	134.2	190.9	244.5	294.3
Coupon payment		-50.0	-50.0	-50.0	-50.0	-50.0
Market value	1,000.0	1,079.1	1,169.7	1,237.3	1,205.8	1,294.3
Revaluations arising from market price changes (cumulative)		9.1	35.5	46.4	-38.7	0.0
CPI (12-month change, %)	5.5	7.0	6.0	5.0	4.5	4.0
CPI (index)	100.0	107.0	113.4	119.1	124.5	129.4

(b) Linked to the gold price

3.16 The final example is a five-year bond paying an annual coupon of 100 (10%) on a principal of 1,000, which is indexed to the gold price. The expected redemption price is assumed to reflect the prevailing market price of gold. Changes in the gold price will affect the market value of the security via changes in the expected redemption price of the security, discounted at the prevailing market interest rate. The same market interest rate and market conditions as in the previous four examples apply to this index-linked bond. At the time of issuance the gold price in national currency is 1,000 per troy ounce. The bond is issued at par with nominal value and market value equal to 1,000.

3.17 Table A3.5 presents (a) the stocks and flows for the first year of the life of the

bond; (b) the market value and related flows during the first year of the life of the bond; and (c) the annual stocks and flows during the life of the bond. The nominal value of the bond reflects changes in the gold price and also the accrual of interest. The market value of the bond also reflects changes in the gold price and the accrual of interest. In addition, the market value, as in the other cases, is inversely related to the market interest rate. As in the other examples in this annex, the difference between the nominal value and the market value stems from revaluations arising from market price changes. As the bond is linked to a narrow index, changes in the value of the bond due to changes in the gold price are recorded as revaluations and not as transactions.

Table A3.5

A bond indexed to the gold price

Issue price: 1,000; annual coupon payments: 100; original maturity: 5 years; redemption price: 1,000, indexed to the gold price.

a. Stocks and flows for the first year of the life of the bond

	1-Jan.	31-Mar.	30-June	30-Sep.	31-Dec.
Nominal value before coupon payment	1,000.0	974.1	948.8	924.1	900.0
after coupon payment at year-end					800.0
Accrued interest		24.1	48.8	74.1	100.0
Coupon payment					-100.0
Market value	1,000.0	931.6	1,010.4	1,061.3	837.2
Revaluations (cumulative)					
arising from changes in gold price		-50.0	-100.0	-150.0	-200.0
arising from market price changes		-42.5	61.6	137.2	37.2
Gold price (national currency per troy ounce)	1000.0	950.0	900.0	850.0	800.0

b. Market value and its changes during the first year of the life of the bond

Market value at beginning of year	1,000.0
Transactions	
Accrued interest due to coupon	100.0
Coupon payment	-100.0
Revaluations	-162.8
arising from changes in gold price	-200.0
arising from market price changes	37.2
Market value at year-end	837.2

Table A3.5 (concluded)

c. Stocks and flows during the life of the bond

	Start year 1	End year 1	End year 2	End year 3	End year 4	End year 5
Nominal value before coupon payment	1,000.0	900.0	1,050.0	1,100.0	1,150.0	1,200.0
after coupon payment		800.0	950.0	1,000.0	1,050.0	1,100.0
Accrued interest		100.0	100.0	100.0	100.0	100.0
Coupon payment;		-100.0	-100.0	-100.0	-100.0	-100.0
Market value	1,000.0	837.2	986.7	1,054.2	1,026.8	1,100.0
Revaluations (cumulative)						
arising from changes in gold price		-200.0	-50.0	0.0	50.0	100.0
arising from market price changes		37.2	36.7	54.2	-23.2	0.0
Gold price (national currency per troy ounce)	1,000.0	800.0	950.0	1,000.0	1,050.0	1,100.0

Annex 4 Security-by-Security Databases

What is a security-by-security database?

A4.1 A security-by-security (SBS) database is a micro database that stores statistics at an individual debt security level.⁴⁸ Statistics are stored according to a range of attributes or characteristics that may vary depending on the purpose of the database. For statistical uses, the attributes may include the international securities identification number (ISIN), name of the issuer, residence of the issuer, sector and sub-sector, issue date, redemption date, type of security, currency of denomination, issue price, redemption price, outstanding amount or market capitalisation, and the coupon payments and dates (see Diagram A4.1).

A4.2 The production of statistics from SBS databases can be presented as a three-stage process (see Diagram A4.2). The first stage typically involves the inputs by collecting and purchasing individual security statistics from a range of sources, such as central banks, government agencies, commercial data providers and securities exchanges. The second stage covers data quality management. The individual security data collected from different sources are received into the database, merged, and stored.

⁴⁸SBS databases may include statistics covering various categories of financial instruments, such as debt securities, equity securities, investment fund shares or units, and financial derivatives. A prominent example of a SBS database is the Centralised Securities Database (CSDB) set up by the European System of Central Banks.

Checks for completeness, plausibility and consistency are then performed, and where errors are detected, observations are corrected. The third stage involves storing individual security data according to various classification criteria, as discussed in Section 6.

Benefits and costs

A4.3 When deciding whether to construct a SBS database, the full range of benefits and costs should be considered. Most of the arguments for and against SBS databases relate to the compilers of securities statistics, although respondents and users are also affected.

A4.4 One of the main advantages of SBS databases is that compilers, rather than respondents, are responsible for the statistical classification of securities. This promotes accuracy and consistency of the data, and adherence to international statistical standards. For statistical purposes, particularly in cases of statistics on securities issues, government finance statistics and institutional sector accounts, individual SBS issues data are usually aggregated according to various statistical categories. SBS databases offer the flexibility to produce different aggregates based on SBS data, with no need for any further data collection. Moreover, SBS databases allow the derivation of data on positions, transactions and other flows. SBS databases also allow quality checks at a very detailed level to detect outlier observations within specific statistical categories. Outliers may indicate a misclassification but they can

Diagram A4.1

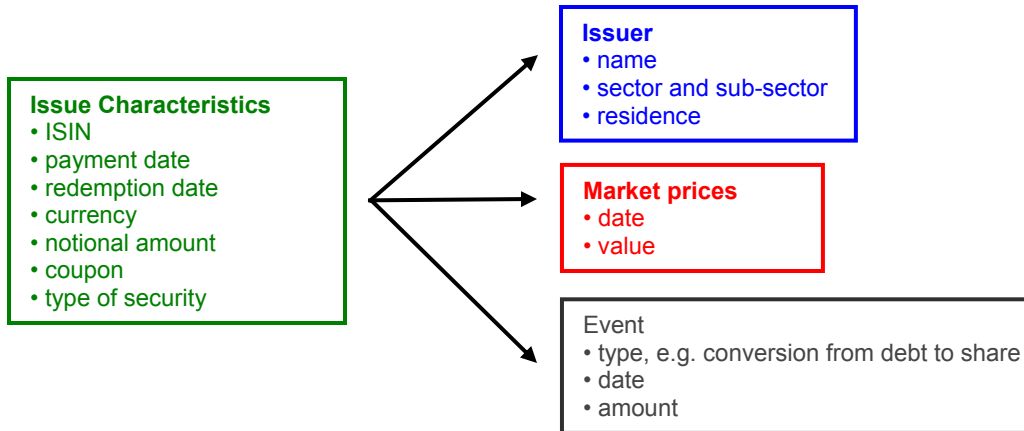
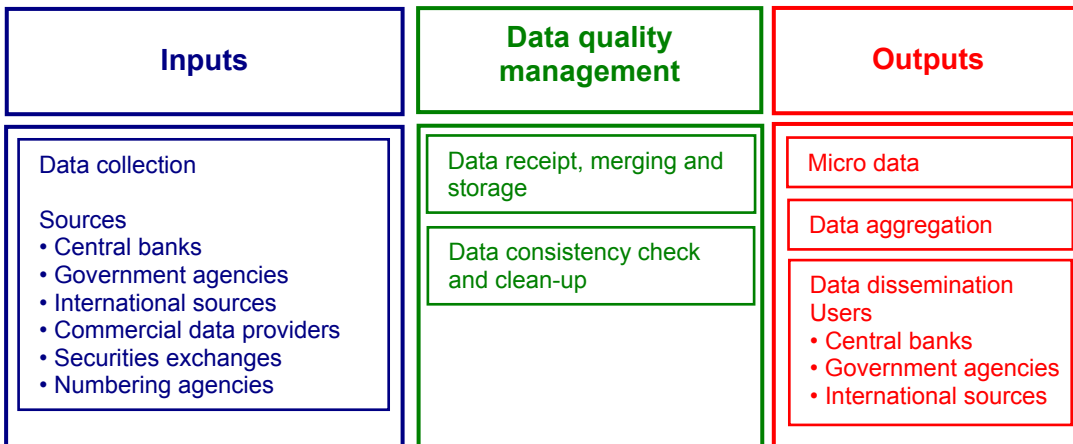
Attributes of statistics stored in SBS databases

Diagram A4.2

Stages in the development of SBS databases

also be caused by financial innovation, which would require further investigation and potentially an amendment to the statistical aggregation categories.

A4.5 SBS databases benefit respondents by reducing the amount of detailed breakdowns

to be reported to compilers. Respondents no longer need to map their internal data into statistical reports and instead provide relevant information for each individual debt security in their database. A drawback for respondents is the necessity to meet data standards agreed with compilers.

A4.6 SBS databases can be extended to include information on securities holdings for resident holders grouped by sector and sub-sector, as well as for non-resident holders. For that purpose, information provided by respondents is linked at the individual security level to the data stored in the SBS database. The link is often done by using ISIN.

A4.7 From the user's perspective, there may be interest in detailed disaggregated data or in combining different classifications, particularly as debt securities markets become more complex and globalised. SBS databases allow this decomposition in debt securities statistics. Sometimes a panel of individual securities data may be set up to analyse common developments. SBS databases also permit an analysis of the financing of different sectors, the size of different market segments or the importance of different debt securities. The databases allow users to track changes in the credit ratings, prices and liquidity of individual securities and issuers.

A4.8 At the same time, there are significant costs for compilers to set up and maintain

SBS databases and adapt them to changes in users' needs. SBS databases are largely sourced from commercial database providers. The acquisition of this information is expensive and can often be incomplete. Information technology costs for database storage and processing are significant. This reflects the complexity of SBS databases from an operational and methodological perspective, large volumes of statistics stored in them, and database management costs that shift to compilers from respondents. A minimum level of quality of data is needed, such as a full coverage of specific categories of securities. There are administrative expenses related to setting up contacts with data providers for regular reporting or to conduct surveys. Some manual intervention is also needed to cross-check corresponding data received from various data providers. Furthermore, there can be legal obstacles preventing data exchange between central banks, statistical agencies, and other authorities. There are also expenses related to finding available human, financial and information technology resources.

Annex 5 Example of Metadata

Table A5.1

Metadata for statistics on debt securities issues

Statistical metadata items shared by all financial statistics

Issuer sector	General government
Issue currency type	All currencies
Issue market	All markets
Maturity	All maturities
Term to maturity	Original
Interest rate type	All interest rates
Variable interest rate type	Not applicable
Debt security type	Non-securitisation debt securities
Valuation	Nominal value
Recording basis	Accrual
Grossing / netting	Gross
Position and flows	Position
Accounting system	Quadruple-entry bookkeeping

General statistical metadata items shared by all types of statistics

Title	General government, all maturities (original), all markets, all currencies, all interest rates, non-securitisation
Unit of measure	US dollar
Frequency	Quarterly
Unit multiplier	Billion
Decimals	One
Seasonal adjustment	Non-seasonally adjusted
Collection reference period	End of period
Start date	1980 Q1
Coverage	Excludes savings bonds and budget agency securities
Breaks	Before 1985 Q3 data include savings bonds and budget agency securities
Data source	Flow of Funds Accounts of the United States; Table L.106 Federal Government and Table L.105 State and Local Governments.
Methodology	Guide to the Flow of Funds Accounts
Timeliness	One month after reference period
Revision procedure	Mainly affecting recent periods when available
Contact name and e-mail	Mr Debt Security; debt.security@frb.gov

Table A5.1 (concluded)

Specific statistical metadata items for debt securities statistics

Regulatory and supervisory environment

Main domestic and international regulations governing the operation of debt securities markets	The Securities Act of 1933 and The Securities Exchange Act of 1934
Names of the regulatory organisations responsible for governing debt securities markets	The Securities and Exchange Commission and self-regulatory organisations such as the Financial Industry Regulatory Authority and the Municipal Securities Rulemaking Board
Listing and numbering requirements of issuers of debt securities	Listing requirements vary by exchange and market place; the CUSIP numbering system is used, although not all debt securities acquire a CUSIP number
Disclosure requirements for issuers of debt securities	Depends on the type of security and how it is traded
Accounting rules for recording the issuing and trading of debt securities	The Federal Reserve book-entry securities system

Market arrangements

Trading arrangements for debt securities	The Depository Trust & Clearing Corporation and the Federal Reserve book-entry securities system
Clearing arrangements for debt securities	National Securities Clearing Corporation and Fixed Income Clearing Corporation
Settlement arrangements for debt securities	National Securities Clearing Corporation and Fixed Income Clearing Corporation

Glossary

Aggregation: the summing of gross position or flow statistics; data for a group of institutional units are equal to the sum of the gross positions or flows for all units in the group (*BPM6* 3.110).

Asset-backed commercial paper (ABCP): commercial paper, created through securitisation, whose redemption value is dependent on a homogenous pool of assets, either purchased in the secondary market or from the balance sheet of an original asset owner, such as mortgages, residential mortgage-backed securities (RMBS), motor vehicle and equipment loans and leases etc. (see also asset-backed security and commercial paper).

Asset-backed security (ABS): a bond, created through securitisation, whose coupon payments and principal repayments are dependent on a homogeneous pool of assets, either purchased in the secondary market or from the balance sheet of an original asset owner, such as mortgages, credit card loans, motor vehicle loans, etc. (*External Debt Guide* Appendix I and *MFS Guide* 4.19).

Asset price-linked: a debt security linked to non-financial asset prices and indices, such as the gold price or a commodities price index, financial asset prices and indices, such as a specific share price or share price index and other asset prices, such as property prices.

Bankers' acceptance: a negotiable order to pay a specified amount of money on a future date, drawn on and guaranteed by a bank (*External Debt Guide* Appendix I).

Bill endorsement: similar to a bankers' acceptance, the bill is drawn by the borrower, accepted by another unit (other than a bank),

and is subsequently endorsed by a bank without commitment to purchase the bill.

Bonds and notes: debt securities with an original maturity of more than one year that are negotiable and usually traded in organised and other financial markets; they usually give the holder the unconditional right to fixed money income or contractually determined variable money income (*External Debt Guide* Appendix I).

Brady bond: a bond issued between the late 1980s and early 1990s to refinance emerging market countries' debt to foreign commercial banks (*External Debt Guide* Appendix I).

Certificate of deposit: usually a negotiable certificate issued by a bank acknowledging a deposit in that bank for a specified period of time at a specified interest rate (*External Debt Guide* Appendix I).

Collateralised debt obligation (CDO): a bond, created through securitisation, whose coupon payments and principal repayments are dependent on a diversified pool of loan and bond instruments, either purchased in the secondary market or from the balance sheet of an original asset owner; similar instruments include collateralised mortgage obligations (CMO), collateralised loan obligations (CLO), and collateralised bond obligations (CBO) (*External Debt Guide* Appendix I).

Commercial paper: a discount and unsecured debt security issued by a corporation whose name appears on the front of the security and who promises to pay to the security holder a certain amount on a stated maturity date (see also promissory

note and asset-backed commercial paper) (*External Debt Guide* Appendix I).

Consolidation: the elimination of positions or flows between institutional units that are grouped together (2008 *SNA* 2.68).

Convertible bond: a fixed interest rate bond that may, at the option of the investor, be converted into the equity of the borrower or its parent (*External Debt Guide* Appendix I).

Coupon payments: part or whole of the interest accrual during a period and payments that reduce the initial principal (*BPM6* 11.49).

Covered bond: a debt security, created through securitisation and issued by the original asset owner, which is backed by assets remaining on the balance sheet of the original asset owner, but identified as belonging to a cover pool.

Cover pool: a package of assets, such as mortgages and credit card loans, which is used to back debt securities issues.

Credit default swap (CDS): a financial derivative whose primary purpose is to trade credit default risk (2008 *SNA* 11.122).

Credit-linked note (CLN): a debt security, created through securitisation, with an embedded credit derivative used to hedge the credit risk of reference assets on the balance sheet of the original asset owner (*External Debt Guide* Appendix I).

Debenture: an unsecured or uncollateralised debt security that is backed by only the creditworthiness of the issuer.

Debt security: a negotiable financial instrument serving as evidence of a debt (2008 *SNA* 11.64).

Deep-discount bond: a bond that has small or no coupon payments and is issued at a considerable discount to its face value (*External Debt Guide* Appendix I).

Depository receipt: a financial instrument that allows a non-resident to introduce securities into another market in a form more readily acceptable to the investors in that market; a deposit-taking corporation will

purchase the underlying security and then issue receipts in a currency more acceptable to the investor (*External Debt Guide* Appendix I).

Detachable warrant: a security, often a bond, with an attached financial derivative giving the holder the right to purchase equity securities of the underlying security.

Domestic currency: the currency that is legal tender in an economy and issued by the monetary authority for that economy, that is, either that of an individual economy or, in a currency union, that of the common currency area to which the economy belongs (*BPM6* 3.95).

Domestic currency-denominated: debt securities whose principal and coupon are both settled in domestic currency.

Domestic market: debt securities issued by a resident of the same economy in which the security is issued (residence of issuer approach) or debt securities issued by both a non-resident and resident of the same economy in which the security is issued (location of issue approach) (*External Debt Guide* 6.21).

Dual-currency bond: a bond where the interest or principal (or both) differ from the currency in which it was issued (*External Debt Guide* Appendix I).

Duration: the weighted average term to maturity of a debt security (*External Debt Guide* Appendix III).

Equity warrant bond: a debt security that incorporates a warrant, which gives the holder the option to purchase equity in the issuer, its parent company, or another company during a predetermined period or on one particular date at a fixed contract price (*External Debt Guide* Appendix I).

Euro debt security: a debt security issued in international markets, denominated in a Eurocurrency (US dollar, euro, yen, etc.) and underwritten and sold by an international syndicate of financial corporations (*MFS Guide* Table 4.2).

Exchangeable bond: similar to a convertible bond but instead the holder has the option to exchange the debt security for an equity security in a corporation other than the issuer or its parent.

Face value: the amount of principal to be repaid (2008 SNA 3.154 (d)); also known as “par value”, or simply, “par”.

Financial corporations sector: the sector consisting of all resident corporations that are principally engaged in providing financial services, including insurance and pension funding services, to other institutional units (2008 SNA 4.98).

Fixed interest rate debt security: a debt security whose coupon remains unchanged for the life of the security or for a certain number of years (see also variable interest rate debt security) (*External Debt Guide* Appendix I).

Flow: economic actions and effects within an accounting period (*BPM6* 3.2).

Foreign currencies: all currencies other than the domestic currency (*BPM6* 3.95).

Foreign currency-denominated: debt securities whose principal or coupon (or both) are settled in foreign currencies.

General government sector: the sector consisting of legal entities established by political processes that exercise legislative, judicial or executive authority over other institutional units within a given area (2008 SNA 4.117).

Global bond: a bond issued simultaneously in the euromarket and domestic market (*MFS Guide* Table 4.2).

Households sector: the sector consisting of groups of persons who share the same living accommodation, pool some or all of their income and wealth and consume certain types of goods and services collectively, mainly housing and food; they also cover unincorporated enterprises (2008 SNA 4.149).

Inflation-linked: a debt security whose principal amount or coupon (or both) is indexed to inflation, such as the consumer price index; as the principal amount increases with inflation, the interest rate that is applied to this increased amount raises coupon payments over time.

Interest payments: periodic payments of the interest costs that the borrower incurs and that primarily take the form of coupons.

Interest rate-linked: a debt security linked to a specific interest rate or interest rate index.

International markets: all markets other than the domestic market (applicable only to the residence of issuer approach) (*External Debt Guide* 6.21).

Location of issue: a presentation based on a geographic breakdown of debt securities markets.

Long-term maturity: a maturity of more than one year, or with no stated maturity (*BPM6* 5.103 (b)).

Market value: the price at which debt securities are acquired or disposed of in transactions between willing parties, excluding commissions, fees and taxes (2008 SNA 3.122) but including accrued interest.

Medium-term note (MTN): an unsecured debt security that pays a specified coupon and with an original maturity of between one and five years (*External Debt Guide* Appendix I).

Negotiable: refers to the fact that legal ownership is readily capable of being transferred from one owner to another by delivery or endorsement (*BPM6* 5.15).

Nominal value: the outstanding amount the debtor owes the creditor (2008 SNA 3.154 (b)).

Non-financial corporations sector: the sector consisting of corporations whose principal activity is the production of market goods or non-financial services (2008 SNA 4.94).

Non-participating preferred share: a type of preferred share in which the payment of a “dividend” (usually at a fixed interest rate) is calculated according to a predetermined formula and not determined by the earnings of the issuer (*External Debt Guide* Appendix I).

Non-profit institution serving households (NPISH) sector: the sector consisting of legal entities that are principally engaged in the production of non-market services for households or the community at large and whose main resources are voluntary contributions (2008 SNA 2.17 (e)).

Note issuance facility (NIF) / Revolving underwriting facility (RUF): a note issued under an NIF / RUF is a short-term debt security issued under a legally binding medium-term facility – a form of revolving credit (*External Debt Guide* Appendix I).

Original asset owner: an institutional unit that is an originator or purchases assets from an originator in the secondary market.

Original maturity: the period from the date of issue of a debt security until the final contractually scheduled payment (*BPM6* 5.104 (a)).

Originator: an institutional unit that originates assets as part of its regular business activities.

Other financial corporations: the financial corporations sector excluding the central bank, other money-issuing corporations and securitisation corporations.

Other money-issuing corporations: deposit-taking corporations and money market funds that issue liabilities that are included in the national definition of broad money.

Permanent interest-bearing shares (PIBS): deferred shares issued by mutual societies that provide “permanent” capital and pay predetermined (but not necessarily fixed) interest not linked to the issuer’s profits (*External Debt Guide* Appendix I).

Position: the level (or value) of assets or liabilities at a point in time (*BPM6* 3.2).

Principal (original): the amount borrowed and to be repaid excluding interest due or accrued (*MFS Guide* 2.46).

Principal (outstanding): the original principal, less non-interest payments the debtor has made to reduce the original principal (*MFS Guide* 2.46).

Private placement: a debt security that is issued by an issuer directly to a small number of investors and typically not rated by credit rating agencies.

Promissory note: an unconditional promise to pay a certain sum on demand on a specified date (see also commercial paper) (*External Debt Guide* Appendix I).

Protection buyer: an institutional unit in synthetic securitisation that makes payments to a protection seller in exchange for credit risk protection for reference assets.

Protection seller: an institutional unit in synthetic securitisation that sells protection against the credit risk on a premium buyer’s reference assets.

Public sector: the sector comprising general government, public non-financial corporations and public financial corporations, including the central bank.

Redemption value: the amount paid to discharge the debtor’s obligation at maturity; also referred to as face value (*MFS Guide* 2.49).

Remaining maturity: the period from the reference date of a debt security until the final contractually scheduled payment; also referred to as residual maturity (*BPM6* 5.104 (b)).

Repurchase agreement: an arrangement involving the provision of debt securities in exchange for cash with a commitment to repurchase the same or similar securities at a fixed price, either on a specified future date or with an “open” maturity (*BPM6* 5.52).

Residence: the residence of each institutional unit is the economic territory with which it has the strongest connection, in other words, its centre of predominant economic interest (2008 SNA 4.10).

Residence of issuer: a presentation based on a breakdown of the issuers of debt securities by residence.

Securitisation: results in debt securities for which coupon or principal payments (or both) are backed by specified financial assets or income streams.

Securitisation corporation: a financial corporation that specialises in issuing securitisation debt securities (BPM6 4.77 (a)).

Securitisation debt securities: debt securities, created through securitisation, such as covered bonds, asset-backed securities (ABS), credit-linked notes (CLN), and collateralised debt obligations (CDO).

Security: a negotiable financial instrument (BPM6 5.15).

Separate trading of registered interest and principal of securities (STRIPS): securities that have been transformed from a principal amount with periodic interest coupons into a series of zero-coupon bonds, whose range of maturities matches the coupon payment dates and the redemption date of the principal amount (*External Debt Guide* Appendix I).

Short-term maturity: a maturity of one year or less (BPM6 5.103 (a)).

Sinking fund provision: a stipulation in the terms of issue of a bond that the

borrower retire a certain proportion of the debt annually.

Treasury bill: a common form of sovereign short-term debt security that many governments issue; it gives the holder the unconditional rights to receive stated fixed sums on a specified date; issued at a discount to face value that depends on the rate of interest and the time to maturity (*External Debt Guide* Appendix I and BPM6 5.44).

Variable interest rate debt security: a debt security with a coupon linked with a fixed spread to a reference index, such as an inter-bank interest rate, a price of a specific commodity, or a price of a specific financial instrument, which normally changes continuously in response to market conditions (BPM6 5.110).

Variable rate note (VRN): a debt security that is similar to a variable interest rate debt security but whose spread to the reference index varies over time depending on the change in the perceived credit risk of the issuer (*External Debt Guide* Appendix I).

Warrant: a certificate, usually issued along with a bond or preferred share, entitling the holder to buy a specific amount of securities at a specific price, usually above the current market price at the time of issue, for an extended period.

Zero-coupon bond: a single-payment debt security that has no coupon payments during its life; it is issued at a discount to its face value and the full return is paid at maturity (*External Debt Guide* Appendix I).

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