EUROSTAT[1]

RECORDING INTEREST ON AN ACCRUAL BASIS

Methodological Note

DRAFT as of MARCH 1999

WARNING:

This is a provisional version of a chapter in a manual to ESA 95 that will also deal with the measurement of Deficit and Debt in the European Union.

The recommendations on some rather minor issues included in point 3 of Part One could be revised. Therefore, this note does not reflect Eurostat's final opinion. In addition, the Member States of the European Union have still to approve the recommendations.[2]

Introduction

Recording interest on an accrual basis is a major change in the new edition of the European system of national accounts (ESA 95). It means that the economic nature of transactions between units is stressed preferably to institutional and practical arrangements, as for the effective payment of interest. Thus, the national accounts aim to measure at any point of time the rights and commitments between economic agents, expressed through financial assets and liabilities.

As well as a major innovation, the new system includes a complete set of accounts, recording both flows and stocks (outstanding amount) and requiring a full consistency between them. In the system, there is a basic distinction between financial transactions (creation, exchange and disappearance of financial assets, by mutual agreement),

---

[1] This note has been prepared by Unit B4, Financial Accounts and Excessive Deficits Procedure. For any further information, please contact Denis BESNARD (352-4301 35282 or Denis.Besnard@eurostat.cec.be).

[2] The English version will also be revised for academic language considerations.

and "other flows". Only the latter has an effect on the net worth of an economic agent. As a part, other flows include changes in value of financial instruments from opening to closing balance sheets that are not due to financial transactions. In addition, ESA 95 asks for valuation of financial instruments at current prices, observed on markets.

Although accrual principle may be considered as rather simple and quite explicit in ESA 95 (see further a reminder of statements), implementation needs further consideration, in order to clarify, and eventually interpret and complete ESA 95 provisions. Some basic features used for accruing are to be specified. Another point concerns the consistency between the accumulation of accrued interest, until they are paid, and the market valuation of outstanding amounts for the relevant financial assets and liabilities. *Recording accrued interest is a crucial issue for General Government regarding the weight of debt in most member States and the debt instruments that are used.*

This note is structured in three parts. A first part deals with theoretical aspects, specifying rules for recording interest on an accrual basis and examining questions raised by some current instruments. A second one provides numerical examples, in a simplified approach that nevertheless shows the main records in flows and balance sheet implied by the accrual principle. Finally, a third party moves to practical issues in the compilation process, notably the availability of sources and the methods that could be used.

PART 1/ INTERPRETATION OF ESA 95 AND RECOMMENDATIONS

1) Reminder: ESA provisions relating to accrued interest

General principle

1.57. (Abstract)

The system records flows on an accrual basis; that is, when economic value is created, transformed or extinguished, or when claims and obligations arise, are transformed or are cancelled.

Thus, output is recorded when produced, not when paid for by a purchaser, and the sale of an asset is recorded when the asset changes hands, not when the corresponding payment is made. Interest is recorded in the accounting period when it accrues, regardless of whether or not it is actually paid in that period. Recording on an accrual basis applies to all flows, monetary as well as non-monetary and intra-unit as well as between units.

Interest on deposits, loans and accounts receivable and payable

4.44.

The interest receivable and payable on these financial assets and liabilities is determined by applying the relevant rate of interest to the principal outstanding at each point of time throughout the accounting period.

Interest on bills and similar short-term instruments

4.45.

The difference between the face value and the price paid at the time of issue (i.e. the discount) measures the interest payable over the life of the bill. The increase in the value of a bill due to the accumulation of accrued interest does not constitute a holding gain because it is due to an increase in the principal outstanding and not a change in the price of the asset. Other changes in the value of the bill are treated as holding gains/losses.

Interest on bonds and debentures

4.46.

Bond and debentures are long-term securities that give the holder the unconditional right to: a fixed or contractually determined variable money income in the form of coupon payments, or a stated fixed sum on a specified date or dates when the security is redeemed, or both these two terms:

a) zero-coupon bonds: there are no coupon payments. The interest based on the difference between the redemption price and the issue price has to be distributed over the years to the maturity of the bond. The interest accruing each year is reinvested in the bond by its holder, thus counterpart entries equal to the value of the accrued interest must be recorded in the Financial Account as the acquisition of more bond by the holder and as a further issue of more bond by the issuer or debtor (i.e. as a growth in the 'volume' of the original bond);

b) other bonds, including deep-discounted bonds. The interest has two components:

(1) the amount of the money income receivable from coupon payments each period;

(2) the amount of interest accruing each period attributable to the difference between the redemption price and the issue price, calculated in the same way as for zero-coupon bonds.

c) index-linked securities: the amounts of the coupon payments and/or the principal outstanding are linked to a price index. The change in the value of the principal outstanding between the beginning and the end of a particular accounting period due to the movement in the relevant index is treated as interest accruing in that period, in addition to any interest due for payment in that period. The interest accruing as a result of the indexing is effectively reinvested in the security and must be recorded in the financial accounts of the holder and issuer.

Time of recording interest

4.50.

Interest is recorded on an accrual basis: that is, interest is recorded as accruing continuously over time to the creditor on the amount of principal outstanding. The interest accruing in each accounting period must be recorded whether or not it is actually paid or added to the principal outstanding. When it is not actually paid, the increase in the principal must also be recorded in the Financial Account as a further acquisition of that kind of financial asset by the creditor and an equal acquisition of a liability by the debtor.

Interest and financial transaction

5.17.

The counterpart transaction of a financial transaction may be interest (D.41). Interest is receivable by the creditors and payable by the debtors of certain kinds of financial claims classified in the categories currency and deposits (AF.2), securities other than shares (AF.3), loans (AF.4) and other accounts receivable/payable (AF.7). In the system, interest is recorded on an accrual basis, that is to say interest is recorded as accruing continuously over time to the creditor on the amount of principal outstanding (see paragraph 4.50.). The counterpart transaction of an entry in interest (D.41) is always a financial transaction creating an additional financial claim of the creditor against the debtor. The effect of this financial transaction is that interest is reinvested. The actual payment of interest is not recorded in interest (D.41), but it involves a transaction relating to the change in ownership of the means of payment. The counterpart transaction is a financial transaction reducing the net financial claim of the creditor against the debtor. When accrued interest is not paid when due, this gives rise to interest arrears. As accrued interest is already recorded in the system, interest arrears do not change the total of financial assets or liabilities but possibly their classification (see paragraph 5.131.).

Difference between accrued interest and nominal holding gains

6.52.

When bonds are issued at a premium or discount, including deep discounted and zero coupon bonds, the difference between its issue price and its face or redemption value when it matures measures interest that the issuer is obliged to pay over the life of the bond. Such interest is recorded as property income payable by the issuer of the bond and receivable by the holder of the bond in addition to any coupon interest actually paid by the issuer at specified intervals over the life of the bond (see paragraph 4.46.). The interest accruing is recorded in the financial account as being simultaneously reinvested in the bond by the holder of the bond (see paragraph 5.17.). It is, therefore, recorded in the financial account as the acquisition of an asset that is added to the existing asset. Thus the gradual increase in the market value of a bond that is attributable to the accumulation of accrued, reinvested interest reflects a growth in the principal outstanding – that is, in the size of the asset. It is essentially a quantum or volume increase and not a price increase. It does not generate any holding gain for the holder of the bond or holding loss for the issuer of the bond. The situation is analogous to that of a good, such as wine, that matures while it is being stored. Any increase in the price of the wine that is attributable to an improvement in its quality reflects an increase in volume and not price. Bonds change qualitatively over time as they approach maturity and it is essential to recognise that increases in their values due to the accumulation of accrued interest are not price changes and do not generate holding gains.

Notion of "volume" of debt

7.47. (Abstract)

Securities other than shares, excluding financial derivatives, (AF.33) should be valued at current market prices in such a way that they include the value of the accrued interest. The global current market value of these securities has two distinct volume components, one representing the principal and the other the accrued interest. The global total volume thus includes the accrued interest (i.e., it is the number of units of securities in issue plus the supplementary volume resulting from accrued interest, see paragraph 6.52.); and the price to be applied to each of those units of volume excludes accrued interest.

Index-linked bonds

5.138 (abstract)

e) in case of securities where the value of the principal is linked to a price index, the price of a commodity or an exchange rate index, the issue price of the security is recorded as the principal and the index payment paid periodically and/or at maturity is treated as interest that is accrued over the life of the security, and the counterpart is recorded as reinvestment in securities other than shares in the financial account;

2) Primary recommendations

a) Financial instruments bearing interest covered by accrual rule

In ESA 95, chapters 4 and 5 contain strong arguments for an extensive record on an accrual basis, meaning that the latter principle should apply to all interest on financial instruments and not only on debt securities.

Effectively, section on interest in chapter 4 covers all kinds of debt instruments. For instance, paragraph 4.44 refers to interest on deposits, loans and accounts receivable and payable. It states that interest is determined "at each point of time throughout the accounting period".

In addition, paragraph 4.50 deals with the question of time of recording and contents a very close wording. "Interest is accruing continuously over time on the amount of principal outstanding." This wording is exactly taken up in § 5.17. It is not specified for which instruments this recording should be put in force and, so, it can be assumed that there is no exception.

Thus, recording interest on an accrual basis is a general principle that applies to any debt instrument, any financial asset on which flows of interest will be paid between two

parties, whatever the specific features of instruments, institutional arrangements and national practices.

From an economic point of view, as soon as a unit provides funds to another one, remuneration is due. A cost of borrowing appears. It must be shown in the national accounts without concern for the actual arrangements of payment between the units. Initial exchange of funds is a sufficient condition for recording interest on an accrual basis. There is no rational ground for excluding some debt instruments from this analysis, for instance arguing that interest and principal are not mixed and are recorded separately in the units' accounting system.

National arrangements relating to interest payment on debt instruments should not be used as a ground for recording interest on an accrual basis. For instance, for certain non-negotiable instruments interest may be "paid" (added to the principal) only at the beginning of a following period, generally a calendar year. Thus interest is not available before thus date, except in case of a total liquidation during the year. However, interest is accrued, as in ESA, all along this year.

b) Relevant rate of interest

There is no clear explicit provision on this point in ESA 95.

From a general point of view, interest can be accrued according to three possible treatments that would be respectively called:

-"debtor or original cost of borrowing principle", based on the rate prevailing at the time of creation of the financial instrument, applied to the issue price (in some cases incremented by accumulated accrued interest),

-"creditor principle", based on the "historical" rate prevailing at the time the holder records for the first time the financial instrument in his balance sheet, applied to the purchasing price,

-"full market approach", based on the rate prevailing at the time of compilation, applied to the current price of the instrument.

There is strong evidence than in ESA 95, accrued interest is based on the point of view of the debtor, the issuer of a debt security, the institution taking a deposit. For instance, paragraph 5.138b states that "the difference between the issue value and the redemption value is treated as interest that is accrued over the life of the security". It means that the conditions prevailing at the time of the creation of the financial instrument are favoured. The paragraph 4.46 provides similar evidence.

In addition, the notion of "global total volume" (7.47, see above) seems only relevant from the debtor's point of view. Effectively, the current market value of a bond has two distinct volume components. One is for the principal and is valued at current price. The other concerns the "supplementary volume resulting from accrued interest". It implies that accrued interest cannot be calculated from the point of view of the creditor. Using a market or an historical value would be inconsistent.

The other two approaches stressed on dynamism of financial markets. Notably, a large share of tradable financial instruments is exchanged continuously on the markets and, in this case, the rate prevailing at the time of the transaction is crucial, as it is one of the factors determining the price of the instrument.

On the opposite, by convention, ESA 95 focuses on the financial burden, the cost of borrowing, that is planned when an economic agent levies funds in the form of various instruments. Thus, in ESA 95, activity on secondary markets is not seen as a ground for measuring accrued interest.

For clarification, one could use a distinction between interest and "yield". The former is based on the cost of borrowing for an economic agent: it is the sum he has to pay in counterpart of funds received from a lender. The later is expressed from the point of view of an investor or lender. It is the return on funds provided to another agent taking into account all flows of payments and re-payments, their exact moment. It can be based either on the own situation of one creditor (the historical purchasing price) or on the general present market conditions.

Note that from a theoretical point of view, under the three approaches all the flows resulting from the contractual arrangements would be similar during the whole life of a financial instrument. Some difference may come from shortcomings that should be rather limited on deep and liquid markets. But the split between transactions (in the financial account) and other flows (in the revaluation account) would not be the same according to each approach.

In any case, interest accrued over the period between two payments dates must be equal to the amount effectively paid by debtors to the holders at the end of the period. This general principle applies both to the case of regular distribution of coupons and for zero-coupon bonds where only a final repayment occurs.

As a general statement, for all kinds of debt instruments, accrued interest method must change only the time of recording interest but not the total amount paid by debtors. The accrual principle is only a matter of time adjustment. Finally, on the whole life of a debt instrument, the amounts of interest paid and accrued should not differ. The actual payments of interest, regularly or under the form of a unique payment, must exactly offset in the financial account the accumulation of accrued interest.

Recording interest on an accrual basis should be consistent with the complete set of accounts for flows and stocks provided by ESA 95, without affecting the consistency between them.

ESA 95 specifies the treatment of nominal holding gains/losses in chapter 6 (see 6.36 and 6.52) only as a change in price of assets/liabilities. Thus, 6.52 clearly indicates that accrued interest "do not generate holding gains" because it is "the acquisition of an asset which is added to the existing asset". Holding gains are linked to a change in interest rate that has an effect on the market price of the instrument that is less, the closer the bond is to maturity (as main factor because there is also a coupon effect due the amount of the nominal rate). It means that, even if the rates are stabilised over the life of an instrument, any change in the value of the bond due to the decreasing maturity is considered as a change in price recorded only in the revaluation account.

The effect of accrued interest could not be assimilated to a change in price on the market. There is no change in the value of accrued interest due to further change in market conditions. Accrued interest is not determined by confrontation between supply and demand as it is for the principal of a security. There is no specific quotation for accrued interest on the markets

In addition, under ESA conceptual framework, accrued interest is a source of income, affecting saving and net borrowing/net lending, with a simultaneous entry in the non-financial and financial accounts. It is not the case with only a change in price recorded in the revaluation account.

Moreover, as ESA 95 stresses on the creation of financial assets and liabilities, the cost of borrowing resulting from the initial agreement between the agent (s) providing funds and the beneficial is a crucial point. It also applies to floating rate or index-linked instruments

where the cost of borrowing is not known at inception but where he conditions in which the reference would be used are fully determined at the time of issuance. Obviously, it is not the case for changing in price during the life of a debt instrument. If the point of view of the creditor (the historical rate at purchasing time) or of the market (the present rate) were favoured, finally the cost of borrowing would be variable even in the case of fixed rate instruments.

For a zero-coupon bond, using a present market rate would lead to consider any change in price as accrued interest, but on a variable basis. This value is always linked to interest. The value of a zero-coupon bond is the present value of the redemption value, or face value, on the basis of the prevailing market rate. However, ESA 95 does not allow exception to the provision that a change in market conditions has no effect on the financial transactions where it concerns bonds that have been previously issued. More, the economic meaning of transactions would be doubtful. They would include in this case the difference between the actuarial value of a given amount (the face value repaid later) expressed at two different moments and on the basis of two different rates. In no way, it would express the cost of borrowing for the issuer.

A final point concerns the question of compound or simple interest for accrued interest.

Following market practice, for zero-coupon bonds, compound interest is required. It should be the same for all discounts or premiums treated as interest (see further item d), as a discount would be paid only at the redemption date.

As regards bonds with regular interest payments (annual or more frequently), no specific recommendation is provided. Both techniques would be quite relevant. However, it must be pointed out that generally on secondary markets accrued interest is determined pro rata temporis between two dates of effective payments, according to a simple formula. Thus, for practical reasons, is would be more convenient to stick to the market practice. In these conditions accrued interest should be estimated exactly under the form they are estimated on markets. That would also fit to the amounts effectively exchanged between investors within secondary market transactions.

Finally, it is obvious that the issue should not be seen as a significant one, with strong effects on the estimation of accrued interest. It is specially the case where markets are fully developed and so regular payments well distributed along the year, or, at least, rather equal on half-yearly period. Results from both methods should be very close. Overestimating interest by simple method for a short period of accrual (compared to compound method) tends to be offset by underestimating it for a longer period. Notably, it can be assumed that it is generally the case for securities issued by General Government.

c) Reinvestment of accrued interest under the instrument

ESA 95 provides some rules in paragraph 5.130 for the classification of reinvestment of accrued interest within the financial account. "Preferably, the counterpart financial transaction of interest accruing on financial assets (see paragraph 5.17) should be recorded as being reinvested in that financial asset. The recording of interest will, however, have to follow national practices. If the interest accrual is not recorded as being reinvested in the financial asset, it should be classified in sub-category F.79."

In a more restrictive statement, recording the reinvestment of accrued interest under the same item as for the underlying instrument has been judged more relevant. However, it would be identified in a memorandum sub-item under the "parent" instrument category within the ESA 95 classification for financial instruments.

This treatment applies to all kinds of debt instruments.

For securities other than shares, several arguments should be considered.

First, for zero-coupon bonds or short-term securities issued at a discount, there is obviously no other solution than recording accrued interest under the item securities other than shares. The reason is that, contrary to other kinds of debt securities, accrued interest cannot be identified separately from the value of principal when a transaction occurs. It is an intrinsic element of the price of the bond. The notion of "clean price" is not relevant in this case. In addition, ESA 95 states that deep-discounted bonds have two interest components (see § 4. 46b), one for the discount accrued over the life of the bond, one for the regular coupon. Both could not be treated in a different way and for the same reasons as in the case of zero-coupon bonds reinvestment is necessarily under the instrument. As a result it would be more consistent to recommend the same treatment for all other debt securities as, in this case, the difference is only that the discount component is zero. A comprehensive approach of securities markets seems highly more consistent.

Secondly, in case of transactions on secondary markets, the amount of accrued interest is always simultaneous exchanged with the principal. This amount cannot be separately negotiated, meaning without a simultaneous exchange of principal. Thus, the transaction must be considered as a whole. The buyer pays to the seller the amount of accrued interest. It cannot be treated as a distributive transaction at this time. All the value of the transaction is to be recorded in the financial account. There is no entry in the property income.

Then, since the date of entry in the holder's portfolio, accrued interest is to be recorded according to general rules (entry in the income account offset by a reinvestment in the financial account) and for the exact period of holding. Later, the actual payment of the "full coupon", recorded only in the financial account, is the counterpart of the initial entry and the following reinvestment of accrued interest.

A third argument is based on the difference between change in "size" and change in price, as provided in 6.52. Including accrued interest in the item "other accounts" would finally mean to consider it only as a "timing difference between (this) transaction and the corresponding payment". But, according to ESA 95, accrued interest is not only a question of timing but changes the "size" of the asset, until the following payment. In a sense, the reinvestment of accrued interest cannot be seen as an independent transaction.

Finally, as a very strong argument, European Union (EU) comparability and aggregation require a deep harmonisation. Otherwise, for instance, the quality of the external EU position in debt securities could be affected. In ESA 95, several paragraphs refer to this possible flexibility: 5.121 (last sentence), 5.128 (last sentence), 5.129 (f), and 5.130 (second and third sentence). In the latter, recording in "other' accounts…" is justified on the basis of "national practice". It is highly questionable. A harmonised system of national accounts cannot be based on national practice, which are necessarily different between countries and even within countries for instruments or in accounting systems used by economic agents.

Concerning non-negotiable instruments, as deposits and loans, the last two arguments are totally relevant in order to justify a similar treatment of reinvestment under the relevant instrument. Nevertheless, rules in chapter 7 about valuation in balance sheets need to be specified.

For deposits, 7.46 stated that are recorded "the amounts of principal that the debtors are contractually obliged to repay to the creditors under the terms of the deposits when the deposits would be liquidated on the date the balance sheet is set up." It is added: "the values may include accrued interest", with a reference to 5.130.

For loans, 7.51 says that are recorded "the amounts of principal that the debtors are contractually obliged to repay the creditors". There is no mention of the question of accrued interest.

In both cases, strictly speaking, accrued interest cannot be considered as principal. For deposits, generally, interest is added to principal under certain arrangements and, for loans, the contract between debtor and creditor mentions explicitly a value of principal (due capital) that excludes interest. However, as ESA 95 clearly states that accrued interest is

assimilated to the acquisition of new amounts of the relevant instrument and considering the fact it has to be paid by the debtors, reinvestment of accrued interest may analytically be considered as principal. In case of deposits, payment of accrued interest is, conceptually, a partial liquidation whereas interest on loans is part of the amortisation process.

d) Single treatment for all discounted bonds

In addition of the above mentioned paragraphs, ESA 95 states in 5.138:

b) Security issues are recorded at the issue value. When securities are issued at a discount or at a premium, the proceeds to the issuer at the time of sale, and not the face value, is recorded in the accounts as the actual issue value. The difference between the issue value and the redemption value is treated as interest that is accrued over the life of the security;

c) deep-discount or zero-coupon bonds should be treated as securities issued at a discount. The interest is accrued over the life of the bonds and treated as being reinvested in such bonds (see paragraph 4.46.);

d) when long-term securities are issued at a discount, which is not significant, the difference between the issue value and the redemption value can be imputed at the date of issue;

However, the latter statement was seen as raising some difficulties. *It is recommended that all bonds issued at a discount should be treated in the same way, whatever the importance of the discount.* Thus, the paragraph 5.138 d is thus not to be applied.

Several reasons explained this change from the original statement.
First, there is no definition in ESA 95 of such category of bonds that does not exist on the market. All discounts are treated in the same way. It means that any definition should be rather arbitrary and quite artificial.

Secondly, ESA 95 allows this flexible opportunity only for long-term securities. One could conclude that in any case for short-term securities the discount must always be recorded on an accrual basis. As ESA leaves also some flexibility about the criterion short term/long term (see § 5.22 and note 3) a discount on short-term securities could be accrued over time whereas it could be smaller than in the case of long term securities. At the very least, it would appear poorly consistent.

Thirdly, the original ESA provision has no firm theoretical grounds. It is only based on practical reasons that would depend very much on the effective domestic conditions in compiling the financial accounts. But, for comparability and harmonisation reasons, clear guidelines must be recommended. Otherwise, largely heterogeneous treatments could be observed. The comparability of data between Member States could be damaged, notably concerning public deficit as a large part of General Government debt is issued with rather small discounts.

Fourthly, *issuance of discounted bonds takes mainly the form, notably for Sovereign Debt, of "fungible bonds" (and assimilated securities, as "linear bonds") that need additional consideration.*

In this case, securities are issued under the similar line (meaning the nominal value, nominal interest rate, coupon payment date and final maturity) by tranches, generally during a rather short period, as the same calendar year but is some cases they may be more spaced out in the time. However, this feature has no importance for the treatment of accrued interest. Homogeneity is obtained through the influence of prevailing market conditions on issue price of each tranche.

At the time of issuance, the investor pays to the debtor an accrued coupon, calculated by reference to the date of regular coupon payment. There is in fact no difference with the aforementioned case of sales/purchases of debt securities on a secondary market where the purchaser pays back to the seller the corresponding amount. Thus, the same treatment should be applied.

Note that this payment cannot be considered as a pre-paid interest as it is not linked to holding the asset during a future period as it is the case for discount instruments where prepaid interest corresponds exactly to the remuneration of funding that is expected during a given period of time. Similarly, this payment of accrued interest could not be considered as an advance, although this element in the secondary transaction is reimbursed later by the payment of the full coupon. It would not be consistent with the basic statement on accrual principle in ESA 95 that insists on the similar nature of accrued interest and the relevant instrument. It is considered as a reinvestment in the latter and not a parallel, new and specific financial operation.

In addition, conceptually, the transaction on the secondary market concerns only holders of a security (the payment comes from the purchaser to the seller in counterpart of delivering the security) but only the issuer has a commitment vis-à-vis the new purchaser. There is no relationship between the seller and the purchaser after the transaction. Moreover, at the time of the actual payment of the "full coupon" it would be difficult to split the payment

between two shares, one corresponding to the reimbursement of this advance and the other to the "pure" remuneration of holding the security during the exact period.

Concerning the treatment of discount or premium in the case of fungible bonds, ESA 95 provides clear guidance. The paragraph 5.138b indicates that the actual issue price must be taken into account, following the general rule on the valuation of financial transactions (see §5.134). This figure (positive or negative) is added to the nominal coupon regularly paid to the holders. In the system the difference between the issue price and the redemption value is considered as interest and must be "spread" all over the life of the security. Fungible bonds may be seen as a perfect example of the case described in paragraph 4.46b where interest is compound of two components: a share for the regularly paid nominal coupon and a share for the aforementioned difference. As in the case of any zero-coupon bond, the second one is only offset by a final payment at the redemption time.

When new tranches are issued in a short term and/or within a period of stable market conditions, premium or discount is in all likelihood very small. In addition, in most cases the nominal rate of the tranches is expressed with round figures (for instance, only one decimal) and there is necessarily a premium or at a discount. Thus, a "non significant discount" seems to be an intrinsic feature of this category of bonds and it would be inconsistent to neglect it. It would mean ignoring the basic nature of this category that represents a large part in General Government debt in several MS. The argument about comparability of data is in this case particularly reinforced.

Thus, premiums or discounts observed when fungible bonds are issued would be considered as interest and accrued over time. As the result from ESA 95 provisions, each tranche is to be identified separately. This information is assumed to be easily available for compilers, at least concerning issues by residents. Obviously, using the nominal rate of the underlying line would lead to wrong entries in the property income and in the financial account. In some cases the discrepancy would be rather large. So, the amount of accrued interest on fungible bonds is first estimated for the liability then afterwards split on the asset side between the different holding sectors, by means of various methods, according to available information on holding securities.

After issuance, a new tranche is "mixed" under a global line and cannot be traded separately on secondary markets, so that in portfolios they are not "traceable". Where data are available for individual lines (and not globally), the share in interest linked to premium or discount (named "second component" in ESA95) would be estimated in a global way, through a weighted average discount (or premium) resulting from the different issues. It would be applied to the total outstanding line. The average would have just to be actualised at each new issue.

e) Treatment of arrears

On this point, ESA95 seems to provide clear guidance, in 5.121 and 5.131.

Where accrued interest is not offset by a payment in cash (eventually under another form as new securities), meaning that the actual payment does not occur at due time, the nature of the claim coming from the reinvestment of accrued interest is assumed to change. There is an entry in the category "other accounts receivable/payable." According to wording in chapter 5, this statement applies whatever the classification of the reinvestment of accruals in the financial account, under the instrument or in F79.

The last sentence of 5.17 specifies that "interest arrears do not change the total of financial assets or liabilities but possibly their classification." This wording gives more flexibility. Moreover, it seems more consistent with SNA that specifies (11.101): "When accrued interest is not paid when due, this gives rise to interest arrears. As accrued interest is already recorded in the accounts under the appropriate asset or under this category {other accounts receivable/payable}, no separate entry for such arrears is required. When they are important it may be useful to group all arrears of interest and repayment under a memorandum item." In addition, in creditors' accounts, this change of classification is not automatic. In a first stage, unpaid interest may be charged on several contractual payments and be recorded separately as arrears only after a delay.

In any case, it is clearly stated in ESA that arrears for the debt principal remain under the instrument item until an actual payment, a debt cancellation or a write-off. In ESA there is no specific category for "bad debt". Of course, it cannot be considered in itself as a financial instrument. 5.122 e specifies that category F7 does not include late payment for redemption of liabilities other than classified in category 7.

The split, recommended in ESA 95, within arrears between interest and principal, is questionable, for practical and conceptual reasons.

For some instruments, as loans (in most cases) and securities (less frequently), debt may be continuously amortised and not only by a final repayment. Any regular repayment on a loan includes both interest and principal. Thus, a defaulting payment by the debtor concerns both interest and principal. In addition, in most cases, penalty interest is calculated on the non-paid amount as a whole, including interest arrears. It would not be relevant (and feasible) to make a distinction within debt instruments according to the amortisation technique.

Moreover, keeping accrued interest under the same item as for the principal when the interest is not paid in due date allows to record more easily a possible debt cancellation (capital transfer) or write-off (other change in volume) that might happen later and generally concern both principal and interest arrears. A single entry would be more convenient and would apply to all debt instruments.

Finally, this treatment where interest arrears are kept under the relevant instrument may be considered as the logical consequence of the above mentioned provision to always record accrued interest under the instrument. As said before, in ESA95 accrued interest is seen as reinvested in the instrument. It means that at this time accrued interest is fully assimilated to principal. As a consequence arrears must be recorded according to statement relating to principal and so remained under the instrument. As there is no exception for accruals recording, all interest arrears would follow this treatment.

3) Recommendations for specific instruments or transactions

a) Stripped bonds

In ESA 95, there is no explicit reference to stripping that means creation of a set of zero-coupon bonds representing future payments of interest or repayment of principal of a "normal bond". This kind of operation is neutral for the issuer in terms of streams of effective payments. It is generally put in force for the purpose of increasing dynamism of market. Although strips may be conceptually considered as a duplication of the underlying bond, all the strips can be treated separately on secondary markets. In most cases investors do not care whether it is an "original" zero-coupon bonds (issued directly under this form) or it results from a stripping operation.

However, there is a need for several further considerations.

First, *stripping is voluntary-based*. The conversion may take place for only a minor part of the total outstanding amount of the underlying bond, depending on the holders' attitudes. As a result, for the initial form, the bond keeps its quotation, is traded and recorded in balance sheets as before. It is clearly a strong difference from other zero-coupon bonds.

Secondly, in most cases, *stripping is a permanent option* that can be exercised at any time, generally through specific intermediaries on the market. However, strips are fungible for the same redemption value and maturity date. Thus strips created at different

moments but corresponding to the same elements of the underlying bond are not considered as separate securities. It means that for estimating accrued interest on zero-coupon strip bonds it would not be necessary to take into account conditions prevailing at each corresponding issue price. Moreover, in case of a great number of operations, that would be completely unrealistic from a practical point of view.

Thirdly, *stripping may normally be reversed*. An investor may ask to converse back into the basis "conventional" bond, provided that he would supply a complete set of corresponding zero-coupon bonds. Thus the original form of the bond dies not disappear forever. These kinds of reverse operation are not infrequent. It may be a matter of complexity for compilation and estimation of accruals.

As above mentioned, the sum of the strips values are actuarially equal to the total streams of flows for the corresponding non-stripped bond, including principal redemption and regular payments of interest. The issuer of a stripped bond cannot record at nominal value both strips for capital and interest payment because there would be in this case an artificial increase in the debt outstanding amount. Stripping is neutral on the issuer's liability. At the time of issuance, the sum the issue prices of the stripped bond is in principle equal to the present market value of principal under the original form.

Where the debt is recorded (as it is generally the case in issuers' books) at nominal (face) value, the transaction has no effect, as there is no reason to change recording all the principal of the original bond. It is the case for General Government under EDP framework. For the issuer, the streams of payment would be the same, even if now the future coupon payments take the form of securities. From the point of view of the issuer, it is finally something that concerns the secondary market and not the primary debt.

However, *in any case, it would not be appropriate to keep strips in the national accounts under the original form and to ignore the conversion*. Strips exist on the market as such and can be traded separately. It is so impossible not to consider them, notably where cross-border transactions are developed. It means, notably, that strips are recorded in the financial accounts at the transaction value. For instance, when they are created, strips representing future coupon payments are entered at issue price that is not interest. As for strips representing the final repayment of principal the difference between the redemption value (the amount of nominal coupon) and the issue price is considered as interest and accrued according to ESA rules, that is continuously. The sum of all accrued interest would be actuarially equal to the total coupons that would have been paid on a regularly basis.

It must be stressed that stripping could be seen as a conversion of interest into capital. Interest charge takes now the form of the reimbursement of zero-coupon bonds. As there are no more regular payments of interest to the holder, no record could occur in property income but only in the financial account. There would be a positive effect on net

borrowing/net lending if interest paid to the holders under the form of capital amounts were not considered as interest by the issuers. The real cost of borrowing would be under-estimated in this case. No issuer would be so "unfair" for taking advantage in that way. But, in any case, recording interest on an accrual basis would absolutely prevent from such irrelevant treatment.

Concerning the choice of the interest rate to be used in case of stripping, the rate prevailing at the time the strips are created cannot be used. It is a basic difference from "normal" zero coupon bonds.

First, as already mentioned, stripping is a permanent process so that it would be impossible to differentiate strips according to their date of issuance, using the rate observed at each operation.

Secondly, again, the choice of the rate for accruing interest in ESA 95 is linked to the cost of borrowing. The latter cannot excess the difference between the redemption value and the issue price. Stripping provides no additional funding to the issuer and there is no impact on the original cost of borrowing, fully determined at the issuance time (in case of fixed rate) or following rules that cannot be changed (in case of floating rate). It is a result of the assertion that the primary debt is not affected.

Thirdly, strips are clearly another expression of the original bonds, both presentations being equivalent. In these conditions, the total amount of interest paid by the issuer over the whole life of a bond is equal whatever stripping occurs or not.

Thus, interest on strips is accrued by reference to the underlying bond and not separately. In the national accounts, it is neutral to calculate accrued interest on all strips in the same way as for zero-coupon bonds or to take into account directly the annual coupon resulting from the original form of the underlying bond. This treatment requires at a minimum to identify strips on an individual basis as on the market and to be able to refer to the underlying bond.

It must be stressed that stripping in several countries show more complex features. It may happen that interest strips, through a fungible-like method, refer to different bonds provided that they have exactly the same maturity. On the opposite, the amounts of underlying nominal coupon (principal of these new bonds) are different. The number of securities provided in the exchange is thus adjusted. In this case, it would be necessary to use the average nominal rate on the different underlying bonds, calculated in proportion to the share of each stripped portion of the bonds. It may result in an additional burden for compilers.

A final point relates to repurchases of strips by the issuer. The latter may not get a complete set that would allow him to reconstitute an underlying bond and then to offset it in his debt amount. In this case, gross recording seems more relevant, meaning that the debt would not be affected. For the purpose of sector allocation in the national accounts, the market price at the time of compiling outstanding amounts should be used. Under the framework of Excessive Deficit Procedure, the consolidation should preferably take into account the share in the total outstanding principal amount of the principal at face value of the strips (representing interest or principal) held by units in General Government. This conversion can easily be derived from the market value of the latter.

b) Floating rates and assimilated issues (including saving premium)

Treatment of floating rates debt instruments does not raise particular conceptual issues but may imply some specifications because of lack of information. Indexes used as references for floating rates are very numerous and may apply in significantly various ways. In case instruments combine fixed and floating rates, as in the case of "mixed bonds", they must be considered as two different instruments.

In case of securities, there is usually a link between the nature of the rate index and the frequency of interest payments. For instance, for a quarterly index interest is paid every quarter with a delay of one quarter. Thus, the exact amount paid to the holders is known in advance. Interest is "pre-determined". Interest can be accrued without e risk of discrepancy with the actual payment.

However, it may happen that interest is "post-determined". For instance, there is an annual index under the form of an average rate during the previous twelve months. The exact coupon due for payment is known only a little time before the actual payment and not before or at least at the beginning of the period the payment occurs. In this case, only provisional estimates of accrued interest could be made and there is a risk that the actual payment would not offset the reinvestment of accrued interest in the financial account. The property income of each economic agent and, by consequence the net borrowing/net lending, does not show the right effect of borrowing funds.

Such gap must not be considered as a capital gain/loss. It is only a question of shortcoming in the estimation of accrued interest. It must be corrected. As it is applied to instruments with regular interest payments, a revision of data should be entered preferably on the last period of compilation, as it would mainly concern quarterly accounts or provisional annual data, easily revisable. However, considering that the discrepancy would be generally very small, for simplification the adjustment could also be entered during the period the actual payment occurs.

In regard to loans and deposits, a great number of references may be used, with a large range of spreads due to the quality of debtors/creditors and various payment practices for interest. In addition, in the case of some loans, the rate can float only under the condition of a minimum change in the index and within specific upward limits. Individual information is not available and in this case only global information can be used. Interest would be accrued on the basis of estimates on the most probable rate that would be effectively paid. The need for correction seems to be less crucial.

The treatment of saving premiums may raise some similar problems to the case of floating rates. ESA95 deals with this point only for securities (5.38g) whereas this practice seems to be rather exceptional in this case within the European Union and concerns more frequently non-negotiable saving instruments. It is clearly stated that such premium should be treated as interest. Such premiums should not be confused with redemption premium that is known from inception and are paid whatever the holder's behaviour. The latter premium is similarly treated as interest but through the accrual component due to the discount resulting from the redemption premium (5.138c).

A saving premium is paid only under a certain condition, generally regarding minimum holding stability. Its payment is strictly linked to a commitment to meet. Obviously, for consistency reason the same treatment should apply whatever the underlying debt instrument. There is no doubt that for the investor it is an additional remuneration, which excludes treating as capital gain, service charges or capital transfers. However, recording it on an accrual basis, like any interest, raises specific difficulties, as the exact total amount paid is not known with certainty before the end of a given period. In it effectively clear that it would not be relevant to record a saving premium on a cash basis and to impute it on the period it is paid.

A solution could be accruing interest on the basis of the "normal" rate, excluding the premium, then making a correction (both in the property income and in the financial account) when it is effectively granted to the holder.

However, in most cases, only a very small minority of holders would not get the additional remuneration and so no benefit from the higher possible rate of interest. One can assume that respecting the condition is quite the rule.

Thus, preferably, interest should be accrued on the basis of the maximum yield, including the premium. In case the latter were not paid, a negative entry would be recorded. If possible, it should affect the full accrual period but for some practical reasons it seems more acceptable to limit it to a few periods of compilation, even the last one.

Note that the treatment of instruments with "progressive interest", in which the rate of interest is increasing proportionally to the holding time, with a maximum for longest possible maturity, would be treated similarly to the case of saving premium.

c) Lottery instruments

Lottery relating to securities is mentioned only in ESA 95 paragraph 5.138g. It is clearly stated that payments resulting from lottery are to be treated as interest. However such instruments are not described. In addition, the question of non-negotiable instruments, which seems to be more frequent that bonds, is not raised. On the opposite, lottery bonds are likely to be very marginal in large and deep markets as in European Union. However, residents' portfolios may include such securities, notably issued on less-developed markets.

From a general point of view, it could be considered that there is a lottery element in case some repayments would depend exclusively on chance and not be guaranteed according to the initial arrangements. Each holder ignores the exact amount of future repayments he would get and only the "gift" is only given to some of them. It makes a clear difference from floating rate securities, where all the bonds are treated in the same way, and from redemption premiums that are totally known at issuance time. It is also not similar to the case of savings premiums that concern all the holders without distinction, with a non-hypothetical amount and a payment depending only on the holder's behaviour. For lottery bonds, it is only a question of chance.

For bonds, the lottery may also apply to the way in redemption. Each year, a part of the outstanding amount is redeemed under the form of a draw for an identified tranche. The repayment is normally the nominal value. The redemption may also take the form of repurchases at market price. In this case, any difference between the transaction amount and the value recorded at the beginning of the period should be considered as a holding gain or loss recorded in the revaluation account.

For all debt instruments, negotiable or not, lottery consists generally in paying a bonus at the maturity date for some of them that are selected at random. Several levels of "grants" are possible.

This additional payment is not to be considered as a holding gain for the holder. It does not result from a market valuation and it does not occur before the "normal" redemption date. As all the features of the lottery (for instance the bonus amount, the percentage of

beneficial holders) are fixed at issuance time, any payment resulting from it is considered as an increase in the remuneration of the bond.

Thus, it is treated as a supplementary interest. However, as a kind of exception to accrual principle and considering the probable small amount involved, it could be recorded during the period it is effectively paid.

d) Index-linked bonds

ESA 95 deals with the case of index-linked securities in §4.46 and §5.138e.

The index may concern only the coupon but generally the provision concerns the principal and as a result the interest is automatically indexed where a stated coupon is calculated from a principal amount.

The paragraph §4.46 covers only a link to a price index. The paragraph §5.138e shows a broader perspective as it added the price of a commodity and an exchange rate index. Obviously, the list is not complete. On the market, other references are frequent, notably Stock Exchange index (that is in fact also a price index). Index may also concern the price of a specific security. The case is not mentioned in ESA but there is no strong argument to provide a specific treatment. In addition, index-link may apply to other debt instrument than bonds.

Any change in value of the principal of a debt instrument resulting from evolution of the index is to be treated in the system as interest. Index-linkage has the effect to increase the cost of borrowing.

ESA95 specified also clearly that accrual principle must apply. It confirms, as already mentioned that it a general statement, with only very few and limited exceptions. It means that any additional charge considered as interest should be recorded regardless the moment it is actually paid to creditors.

In these conditions, the index should apply continuously all over the life of the bond. So, effects of change must be taken into account at each compilation date, even if the

arrangements stated that the payment would be based on the value of the index at a certain point of time, for instance close to the final redemption date.

This valuation however must not be assimilated to a market valuation. In the case of a non-index-linked bonds, the market value will finally be equal to the face value, whereas it is only a specific case for index-linked case, for instance where there is a guaranty of minimum value. The current price includes the index-link effect on principal value but it may diverge for several reasons, as liquidity and anticipations. As a result, the change in stocks cannot be purely considered as the value of the transaction relating to the reinvestment of accrued interest from the index. In the national accounts, only the "pure" effect of the index is to be entered in property income and financial accounts. Other elements are recorded as holding gains or losses in the revaluation account.

In particular, this statement would apply for bonds index-linked on a rate of exchange. In this case, such bonds are clearly considered in the system (similarly to the System of National Accounts and the Balance of Payments Manual) as a different instrument from a bond simply denominated in foreign currencies. In the latter case, changes in the rate of exchange are recorded in the revaluation account with no effect on net borrowing/net lending. In addition, generally a minimum redemption value is guaranteed where there is an index-linkage, which reinforces the difference of nature between both kinds of securities.

e) Short term negotiable instruments

As a reminder, ESA95 provides quite some flexibility on the definition of short-term instruments. The "one year or less" rule does not apply strictly. Effectively, § 5.22 accepts a limit of two years at the maximum "in exceptional cases" that are not at all mentioned and left to compilers' initiative. Moreover, a footnote (page 97 in the definitive English edition) adds that in the case of securities issued by General Government "a maturity up to five years may be classified as short-term." However, this flexibility has no effect on the treatment for recording interest on an accrual basis.

From a conceptual point of view, there is no rational ground for treating these instruments differently from bonds. All features relating to accrued interest should be considered in a similar way, as the rate prevailing at time of issuance, the nature of premiums and discounts, the reinvestment, etc. From a practical point of view, estimation of accrued interest may raise specific difficulties, due to existing sources of information.

Where original maturity is over one year, whatever the frequency of payment (regularly or at final date), accrued interest should be recorded rigorously in the same conditions than for long term bonds and notes.

Concerning instruments with a maturity not exceeding one year, it must be stressed that in most cases they are issued at a discount. In these conditions, all the statements relating to zero-coupon bonds should apply without reservation (point of view of the issuer and reinvestment recorded under the instrument). *Where short-term securities carry stated rate of interest any discount, whatever its significance, is treated as interest.* In both cases, the sources of information may not provide precise information, especially for some categories of instruments issued frequently by a large number of borrowers, as it is the case for certificates of deposits or commercial paper. For these categories, global estimates could be based on average maturity and average rate of interest prevailing at issuance.

f) Instruments with grace periods

Some debt instruments may include a grace period during which no interest is paid. ESA 95 (neither SNA) does not mention this feature. Such arrangements are mainly observed in the case of loans. It is more infrequent in the case of bonds. General Government may be involved, notably for loans granted to developing countries.

The instruments may have a zero rate of interest during the grace period. In this case, interest is not accrued because of a zero cost of borrowing. It may happen that the rate of interest applied after the grace period takes into account the effect of the grace period, being higher than in normal conditions so that the final yield is roughly the same on the whole life on the instrument. The grace period is seen in this case more as a temporary relief to the borrower's treasury. However, there is no effect on accrued interest as it is unquestionable that, during the first period, the debtor has no commitment concerning the interest payment.

In other cases, interest payments are only postponed from the grace period to the remaining lifetime of the instruments. So, the cost of borrowing is not equal to zero. Interest is really due and is capitalised, most often following a compound method. All the amount of accrued interest during the first period is paid later under various forms as an exceptional payment added to the first coupon, a spread all over the remaining period added to each regular coupon, an increase of the final repayment. It may be paid under another form than cash, for instance securities. All these possible features and the moment of the effective payment of interest do not matter. Accrual principle should apply normally in any case.

g) Other debt instruments

All the aforementioned statements are not expected to cover all cases of financial instruments bearing interest and existing at the present time. Although they represent only a minor part in the total amount, it could be mentioned "convertible bonds" (options cannot be separated from the underlying bond), "put and call bonds" (with a separately negotiable option), "junk bonds" (at high yields and with a price rather variable), etc. In addition, innovation on financial markets cannot be taken as having reached to its end, especially for the currently called "structured instruments".

It may be assumed that compilers would be in a position to identify completely in all debt instruments the basic features relating to accrued interest and so to apply the rules.

In any case, a complex instrument could be considered by analogy to a general case, notably by splitting up the instrument in several more simple parts showing explicitly the cost of borrowing of the debtor.

h) Effect of change in the rate of exchange for instruments denominated in foreign currencies

For these instruments, the amount of accrued interest, in the property income and concomitantly as reinvestment in the financial account, is expressed in domestic currency on the basis of the average exchange rate during the period of compilation. On the other hand, a spot rate is used at the time of the effective payment of the interest. It may be a large gap, notably for discounted instruments. *In consistency with valuation rules in ESA (see 6.58), interest already accrued and reinvested should no be corrected and an adjustment should be entered in the revaluation account.*

i) Income of Mutual Funds

ESA95 states in 5.141 that income received by Mutual Fund is assigned to holders of their shares, after deduction of management fees. The income received by the Mutual Fund is recorded according to ESA rules, i.e. on an accrual basis for interest and "at the time they are due to be paid" (in practice close to the effective payment date) for dividends. As a reminder, holding gains or losses are not recorded as property income in the system.

For the income attributed by holders accrual principle fully applies in the same conditions as for other debt instruments, regardless the income repaid to holders is distributed or capitalised. In this view, mutual funds are thus considered as "transparent".

This treatment may raise some specific difficulties. Such are estimating regular management fees, treated as service charge like any in/out fee, identifying separately income and holding gains or losses in accounts of mutual fund, recording interest received in consistency with the point of the view of the issuers for the instruments they hold, specially at a discount. Preferably, any adjustment should be considered as a change in the value of portfolio and recorded in the revaluation account.

j) Early redemption of debt instruments (including exchange)

Whatever the instrument, a debtor may have the possibility to break the initial contract and to offset his own debt before the maturity date that had been agreed before. In fact, it seems to be rather few cases where it is not possible but a specific notice may be required. However, the creditors (holders of securities, lenders of loans, managers of deposits) receive generally a counterpart.

First, consider the case of securities.

An early redemption may take the form of repurchases on the market by the issuer, on condition that the contract allows it. But it may also be the result of an exchange of securities. The issuer asks for some specific bonds (or bills/notes) and "pays in paper", supplying a new security or a new tranche of a security previously issued. The price may be fixed through a competitive procedure, as a tender. Such operations may occur after market rates have fallen, meaning an increase in the market price of the bond. In this case, the issuer is aiming a reduction of the interest burden. However one could imagine the symmetrical situation (interest rate has increased) and an exchange implemented for reducing debt. In the first case (of course the most frequent), the issuer would "pay" the previous securities at market price, higher than the nominal (face) value. General Government may be involved in such exchange in the context of an active debt management.

Thus, in the context of an early a gain/loss (also called "premium") should be observed. In case of a positive premium, there is a gain for the holder and a loss for the issuer, recorded in respective revaluation accounts.

The amount of this premium depends narrowly on the way the debt is measured. In the framework of ESA 95, financial instruments are valued in principle at current prices, where meaningful prices are available. It is generally the case for debt securities markets. Thus, the premium is equal to the difference between the outstanding amount at the end of the previous reporting period and the price used effectively in the exchange. It results from the change in interest rate since this date (considering also the decreasing maturity of the instrument). On the opposite, where the debt is not valued at market price, as it is currently the case in the Excessive Deficit Procedure, it is clear that the premium would be in all likelihood higher than in the previous case. Nevertheless, that does not impact the treatment that is completely similar in both cases.

The gain or loss (premium) could not be recorded as interest.

Units of the bond presented in the exchange by holders definitively disappear, as if they were reimbursed. According to ESA 5.138g the redemption value includes redemption premiums. The paragraph 5.138 b specifies that the difference from the issue price is treated as interest, accrued over the whole life of the bond. It is similar to the case of an issuance at a discount. Moreover, in the case of an early redemption, the difference between the amount effectively paid to the holder and the initial redemption value stated at inception cannot be assimilated to a redemption premium. The latter should have been known also at the time of issuance, corresponding to a basic feature of the bond.

In fact, exchanges of bonds are similar to transactions on secondary markets. From the point of view of the holder, it looks like a sale on the secondary market immediately, and not as a separable transaction, followed by an automatic reinvestment in the same category of debt instrument. *Any transaction on the secondary market normally provides holding gains or losses, recorded in the revaluation account. The same approach applies to the case of an exchange of bonds.*

Concerning the bond received by the holder, the only link with the previous one is the strict equivalence between the amount bought back by the issuer and the new amount issued. As generally the nominal value of individual security is identical, the holder gets a number of new securities larger than the number he brings. A (little) cash payment may occur as adjustment. For bonds with regular interest payments, there is, in addition, a payment by the issuer for the accrued coupon that may be also converted into new bonds. It is clear that the premium cannot be imputed on the issue value. It has already been taken in consideration in the amount of the new issue. It has no effect on the interest or yield of the bond provided by the issuer.

An exchange is of course neutral on the flows in the financial accounts, because both operations are recorded at their actual price. Except if accrued coupon is reinvested, there

is no new funding for the issuer and the market value of the debt is unchanged. On the opposite, the "volume" of the debt, as defined in ESA 95 7.47, is changed because of the increase of principal amount.

According to ESA 95, the exchange has no effect on net borrowing/net lending at the time of the exchange. Later, it should be affected through the flows of interest. The exchange is neutral from an actuarial point of view but it changes the distribution of repayments over the time, from regular payments of interest to a final repayment of principal (in case interest rate had decreased). The effect also depends on a possible change in the maturity of the debt that is exchanged.

Second, <u>consider the case of loans</u>.

Where the debtor has the right to reimburse a loan before the final maturity, he may be forced to pay to the lender an indemnity, a lump sum, generally calculated over the remaining amount of principal but possibly representing several interest payments. General Government may be involved in such transactions, more likely as a creditor to some economic agents.

Several treatments could be envisaged.

Considering the indemnity as a capital transfer, with an impact on net borrowing/net lending, would not be relevant. In this case, the early redemption could be considered as a kind of debt assumption (implemented by the lender himself). However, in ESA 95, paragraphs 4.132 about fees and penalties and 4.136 about payments of compensation presently do not cover this case. In addition, it must be a mutual agreement for this transaction. But, in fact, the lender is generally not at all in a position to accept or refuse the transaction where it is explicitly mentioned in the contract.

Treating the indemnity as an option would not be consistent with ESA. It could be argued that the borrower holds the right to get back a repayment before maturity, whenever he wants, and thus to offset his debt. The lender has accepted to provide this right. The lump sum could be seen as the cost to buy, the price of the option. On markets some options exist where premium is only paid in case of exercise. There would be no effect on net borrowing/net lending. However, this kind of option cannot be considered as a financial derivative according to ESA definition. It looks like a contingent asset or an "embedded derivative" as the right to ask for an early withdrawal cannot be separately traded (or off-set) from the debt instrument. In addition, it would be rather difficult in practice to meet the recommendation about options relating to recording premium at inception, even where it is paid later.

Recording the indemnity as capital gain (for the lender) and loss (for the borrower) may have rather strong rationale grounds but is not in line with ESA 95. The latter has to repay more than the initial flow of funding (under principal of loan) for releasing from his debt. The over-payment is generally calculated on the basis on the value of the remaining due capital. The indemnity is added to the principal and both are indivisibly integrated in the redemption value. The reimbursement of the loan is realised only under the condition of the indemnity payment. This treatment would be similar to the above-mentioned case of an early redemption of bonds. There would be no effect on net borrowing/net lending. However, it must be stressed that the redemption value is not a market price, whilst in ESA95 capital gains or losses result from a valuation of the asset, a price fixing. Loans are not valued on market and capital gains or losses may only occur in case of a transfer to another agent. It is not the case for an early redemption. The value is determined according to an amortisation plan that is known from inception. It is not a market price as in the case of early redemption of bonds. The indemnity cannot be seen as a revaluation of the value of the loan.

Treating the indemnity as interest would not be a relevant solution. It seems really difficult to consider that the interest paid by the borrower is increased. As interest must be recorded on an accrual basis, it should apply since the beginning of the loan, as if the early redemption gave right to a compensation under the form of a higher cost of borrowing. However, accrual principle is directly linked to funding, of which the cost is to be expressed in a continuous way and, from an economic point of view, according to the conditions prevailing at the time the debt instrument is created. In addition, the indemnity is in fact calculated on the remaining due principal amount and not funds that have been effectively available and used by the borrower. It is rightly because the borrower does not want to keep benefiting from the effects of the loan that he has to pay the indemnity. Interest could not be the price of such giving up.

Finally, the indemnity would be considered as a service charge, with an impact on net borrowing/net lending. The redemption of the loan is a financial transaction but it is accompanied by the provision of a financial intermediation service. Effectively the initial lender allows the borrower to settle his debt and, so, to improve his own financial situation. It implies some administrative costs as one can assume that this change in the planned course of the financial asset implies some tasks and takes some time. In addition, the initial lender will have to substitute a new activity, a new source of profit.

Of course, it could be argued that the indemnity is not assumed to cover costs of this specific operation, as it should be in this case the same fixed sum at any point of time (costs do not depend on the remaining maturity). In fact, the adequation between the price and the real cost is another matter. A proportional indemnity comes generally from specific regulation and is aiming to avoid a too earlier redemption by a rather dissuasive cost during a long period. In the national accounts there is normally no point in questioning the level of prices and the reality of effective counterpart to a service charge. However development of competitive markets should lead to reduce this service charge.

Third, <u>consider deposits</u>.

For some instruments, as time deposits or saving deposits, a given rate of interest may be paid only under condition, generally a minimum holding period, stated contractually at inception or according to general rules. An early liquidation (where contractually allowed) will imply a reduction in the rate of interest paid to the holder. It would be also the case where a delay is not respected for deposit redeemable at notice.

In order to record interest on an accrual basis there is no other solution than considering the initial, contractual, rate of interest. More precisely, in this case, it is the maximum one that may receive the depositor under the condition he respects the arrangements about maturity or notice. What happens where the contract is not respected? *Similar arguments to the case of early redemption of loans may be used to reject ant treatment as capital transfer, option and capital gain or loss.*

The provision of liquidity by the financial intermediary managing the deposit could be seen as a new transaction. A specific relationship would be added to the previous one concerning the deposit. The indemnity would be the cost paid by the depositor for recovering a liquid position. When acting like that, the depositor forces the institution to find new resources or to reduce its activity, which implies some expenditure.

Existence of a new relationship is questionable. Withdrawing a deposit could also be considered as an intrinsic element of managing deposit. Financial institutions are used to preserve against such risk of liquidity. Whatever the conclusion on this point, the treatment must take into account other issues.

Thus, property income must record the exact remuneration relating to the deposit. In all likelihood, the investor will consider the interest net of penalty as the final remuneration he has got from this operation. Moreover, the actual payment of interest must exactly offset the reinvestment of accrued interest in the financial account. Otherwise, the over-estimation of the reinvestment compared to its further repayment would lead to some discrepancies within the integrated system of accounts.

The interest accrued previously should be corrected on the basis of the new final rate. As the amount of globally is globally very small compared to the total interest on deposits, for practical reasons, the correction could be imputed only on the last period of compilation. In addition, it may be assumed that General Government is rather not frequently involved in these transactions.

Finally, consistency with "Financial intermediary services indirectly measured" (FISIM) is a crucial point. First, as a reminder, as a basic principle in the system, commissions, fees or charges must be explicitly and separately charged in order to include them directly in producers' output. The net interest resource is included in FISIM but the latter is calculated on the basis of interest effectively paid by financial institutions. In these conditions there is a need for a negative entry in interest flows in the property income and in concomitant the reinvestment in the financial account, in order to avoid a double counting. For instance, the normal rate was 5% and the FISIM 7%-5%=2%. But after an early redemption, the rate effectively paid is 4%. The FISIM is now 7-4%=3%. There is no need to add a service charge, as the FISIM would have already taken into account the penalty.

k) Reduction of interest rate in the case of loans

It may happen that a lender and a borrower agree on a reduction of the rate of interest applied for a loan. Two cases should be distinguished.

First, the reduction has a retroactive effect. It means that the borrower has not effectively paid the amount of interest that has been already accrued. In other words, the reinvestment of accrued interest has not been offset in the financial accounts. As this reinvestment is considered in the system as a commitment, a full liability, the reduction of the rate of interest it to be treated as a debt cancellation, affecting net lending/net borrowing in the capital account. In case the lender decided to reimburse interest already paid, this lump sum should be recorded as a transfer. There would be no reason to change the amount included in the property income.

Second, the reduction has no retroactive effect and is only applied in the future. It seems to occur in most cases. There is no specific issue in this case. Interest would be accrued on the basis of the new rate of interest.

II/ PART II / NUMERICAL EXAMPLES

1) Instrument issued at par and regular coupon/interest payments

On first of July of year 1, the Central Government issues a "classical bond" with a principal of 1000, a rate of interest of 5% paid at this date. The maturity is 10 years and the redemption occurs *in fine*. It is supposed that, due to fall in the market rate of interest for long term bonds, the market price of the bond (excluding accrued coupon) is 102%. During Year 2, interest rates continue to fall and the market price of the bond is now 105%. For, the issuer, the flows and stocks would be recorded as follows:

(table 1)

-flows in year 1:

       .D41, interest on an accrual basis: -25

       .F332, issuance: +1000

       .F332, reinvestment under the instrument: +25

-stock at end year 1 in ESA95:

       .F332, long term bonds: 1045 (25 + 1020)

(-nominal value of Central Government debt in EDP: 1000)

-revaluation account for year 1:

       .K11, holding gains: +20

(table 2)

-flows in year 2:

       .D41, interest on an accrual basis: -50

       .F332, reinv. of a.i. for the year: +50
            reimbursement of interest
            previously accrued: -50
       .F22, payment of annual coupon: -50

-stock at end year 2 in ESA95:

       .F332: 1075   (successively: 1045 + 25 – 50 + 25 +30)

(-nominal value of Central Government debt in EDP: 1000)

-revaluation account for year 2

.K11: +30

<u>Three remarks</u>:

1) On the basis of compound interest (that may be seen as not necessary on a macro-economic approach, see above), accrued interest and reinvestment should be 24.3 in year 1, whereas the value according to in ESA 95 valuation rules for the stock of debt would be 1044,3. But, there is no effect on flows recorded during year 2. At end of year 2, the value of the stick of debt would be 1074.3.

2) The effect on the debt (according to ESA 95) is directly linked to the periodicity of the coupon. Clearly, in this example, if the coupon were paid half-yearly, the value of the debt would be 1020 at end year 1 and 1050 at year at end year 2 because at these dates no accrued interest is due to the holders.

3) Under the framework of EDP General Government debt is recorded at face value all over the life of the instrument and accrued interest is not included in the debt (as reinvestment under the instrument or in other accounts payable). As a result, there is a distortion between the effect on net lending/net borrowing of interest on an accrual basis and the change in debt. For such instruments (regular coupon and issue at par), it appears only during the first year.

2) Instrument issued with discount or premium and regular coupon/interest payments

On first of September of year 1 Central Government issues a tranche of a bond with the following features: principal 1000, rate of interest 5% (annual nominal coupon is so equal to 50), maturity 10 years, payment date on 1rst July, redemption *in fine*. However, at the time of issuance, market rates are higher, so that the issue price is in fact 95% (corresponding roughly to a yield of 6%). This discount of 50 is spread (in an actuarial manner) all over the life of the bond (2.5 first year, 3 second year, 6 last year). For simplification, the bond is always quoted 100% during the same period. (Rounded figures)

(table 1)

-flows in year 1:

.D41, interest on an accrual basis: -15 (12.5 + 2.5 for the premium)

.F332, issuance: 965 (950 + three months of accrued coupon)

.F332, reinvestment under the instrument: +12.5 (reinvestment)

-stock at end year 1 in ESA95:

.F332, long term bonds: 977.5

(-nominal value of Central Government debt in EDP: 1000)

(table 2)

-flows in year 2:

.D41, interest on an accrual basis: -53

.F332, reinvestment of "new" accrued interest : +53

.F332, reimbursement of interest
        previously accrued : - 50

.F22, payment of annual coupon: -50

-stock at end year2 in ESA95:

.F332: 980.5   (977.5 + 26.5 – 50 + 26.5)

(-nominal value of Central Government debt in EDP: 1000)

(table 3)

-stock at the beginning of year 10

        .F332: 1022

(-nominal value of Central Government debt in EDP: 1000)

-flows in year 10:

        .D41, interest on an accrual basis: -28 (of which 3 for the discount)

        .F332, reinvestment: +28

        .F332, redemption: -1050

        .F22, final payment (last coupon and reimbursement of principal): -1050

3) Instrument issued with discount without regular coupon/interest payments

        The Central Government issues (for simplification the payment date is first January) a zero-coupon bond at a price of 75 with a redemption value of 100 three years later. Thus, at this time, the implicit interest rate is 10%.

        In a first view, there is no change in the rate of interest on the market during this period.

(table 1)

-flows in year 1:

      .D41, interest on an accrual basis: -7.5

      .F332, issuance: 75

      .F332, reinvestment under the instrument: +7.5

-stock at end year 1 in ESA95:

      .F332, long term bonds: 82.5

(-nominal value of Central Government debt in EDP: 100)

-flows in year 2:

      .D41, interest on an accrual basis: -8.3

      .F332, reinvestment under the instrument: +8.3

-stock at end year 1 in ESA95:

      .F332, long term bonds: 90.8

-flows in year 3:

      .D41, interest on an accrual basis: -9.2

      .F332, reinvestment under the instrument: +9.2

-stock at end year 3 in ESA95 (before redemption):

      .F332, long term bonds: 100

Now, just a little time after the issuance of the zero-coupon bond, a "shock" on interest rate occurs. For a maturity of 3 years, the interest rate increases up to 15% and remains at this level until the final redemption of the bond. So, at the time of the change in interest rate, the market value of the bond would be almost 66. There is so a new table:

(table 2)

-flows in year 1:

     .D41, interest on an accrual basis: -7.5

     .F332, issuance: 75

     .F332, reinvestment under the instrument: +7.5

-stock at end year 1 in ESA95:

     .F332, long term bonds: 76

-revaluation account:

     .K11: -6.5

-flows in year 2:

     .D41, interest on an accrual basis: -8.3

     .F332, reinvestment under the instrument: +8.3

-stock at end year 1 in ESA95:

     .F332, long term bonds: 87

-revaluation account:

     .K11: +2.7

-flows in year 3:

     .D41, interest on an accrual basis: -9.2

     .F332, reinvestment under the instrument: +9.2

-stock at end year 3 in ESA95 (before redemption):

```
          .F332, long term bonds: 100

-revaluation:

          .K11: +3.8
```

Comments:

When the "shock" occurs, the difference between the redemption price and the prevailing market price becomes 34. Only this amount would matter for a new holder, as it would be the "return" of its investment (if he keeps the bond until redemption). However, 66 are not an issue price. Taking into account 34 as interest being accrued over three years would not be relevant. This amount does not represent the cost of borrowing funds for the issuer that is unchanged, at 25, and has been stated at inception.

At the end of the first year, the current price of the bond is lower than the value resulting from the accumulation of accrued interest, 82.5, on the basis of the original rate of 10%.

During the second year, interest is accrued from a stock of 82.5 at the initial rate of 10%, as in table 1, but the values in the opening balance sheet and in the closing balance sheet are derived from a market rate of 15%.

The entry in the revaluation account is absolutely necessary (where the outstanding amounts are valued at market price). It needs further consideration.

For instance in year 2, a nominal loss (because it concerns a debt) is recorded in the revaluation account. It comes from the difference between the market value and the sum of the value in opening balance (at market price) and accrued interest, based on the original rate and the "theoretical" value (possibly also named "volume") equal to the issue price and the accumulated accrued interest. Thus, +2.7 is the difference between 87 (market value) and the sum of $76 + 8.3 = 84.7$.

Note that this entry is only used for reconciliation of flows and stocks.

First, holding gains and losses in the national accounts may no reflect the perception of the change of value by the economic agents. It would happen if the issuer recorded the bond on the basis of the original rate, as in table 1, at 90.8. In case he would reimburse earlier the bond (assuming that it is possible), he would realise a nominal gain of 3.8 as he would pay 87 to the holders on the market, less than he would normally expect to do. (Of course, this case is rather hypothetical as he should have to refinance his debt as a higher rate of interest but it is not quite impossible).

Second, these nominal holding gains/losses are absolutely neutral on the cost of borrowing relating to the issuance of the bond. It can easily be checked that during all the life of the bond the national accounts finally record perfectly the total effect on issuer's net worth.

In the example, the national accounts would record: 7.5 + 8.3 +9.2 (as accrued interest), on the one hand, and –6.5 +2.7 +3.8 (in the revaluation account). The algebraic sum is 25, equal to the total of interest paid by General Government for a flow of fund of 75 (100 –75 or 7.5 + 8.3 +9.2).

4) STRIPS

The State has issued a domestic bond with a fixed rate of 15%. The principal is 1000 (reimbursed in totality in a final payment) and the annual coupon is 150. When there is a remaining maturity of three years (and so, a remaining cost of borrowing for the issuer of 450), the State decided to create a set of strips.

First, consider the (pedagogical) case where no change has occurred in the rate of interest. The State creates four zero coupon bonds, three coupon certificates for the future annual interest payments (valued respectively 99, 113, 130 on the basis of price equal to 65.8%, 75.7% and 87%), one coupon certificate for the final repayment of principal (valued at 658 as the price is 65.8%). The following table shows the entries for the first year of stripping. (Figures are rounded, all the bond is stripped and, by simplification, transaction occurs at the end of the year)

98.7 (658 x 0.15) + 15 (98.7 x 0.15) + 17 (113 x 0.15) + 20 (130 x 0.15)
 = 150

(table 1)

-stock at the beginning of year 1:

      .F332: 1000

-flows in year 1:

      .D41, interest on an accrual basis: -150
    98 (658 x 0.15) + 15 (99 x 0.15) + 17 (113 x 0.15) + 20 (130 x 0.15)
      or 1000 x 015

      .F332, reinvestment under the instrument: +150

      .F332, reimbursement of first coupon certificates: -150

      .F22: -150

-stock at end year 1 in ESA95:

      .F332, long term bonds: 1000

      (757 + 113 + 130)

(-nominal value of Central Government debt in EDP: 1000)

Consider now that the stripping is implemented with new market conditions. For instance, the present rate of interest has fallen to 10%.

At the time of stripping, the values of the strips are 113, 124, 136 and 752 (on the basis of prices in percentage 75.2, 82.7 and 90.8). In this case, the return for investors, measured by the difference between issue prices and redemption amounts, would be only 350. But, as stressed before, it would be wrong to accrue interest on the basis of the new rate (giving for the first year an amount of accrued interest of $75 + 11 + 13 + 14 = 114$ and not 150) because the cost of borrowing is unchanged for the issuer by a stripping transaction. In addition, it would not fit the sum paid with the reimbursement of the first interest strip. Thus, even in the case of stripping, the rate of interest of the bond at the time of issuance must be taken into account. Recording would so be the following:

(table 1)

-stock at the beginning of year 1:

      .F332: 1000

-flows in year 1:

      .D41, interest on an accrual basis: -150
      1000 x 015

      .F332, reinvestment under the instrument: +150

      .F332, reimbursement of first coupon certificates: -150

      .F22: -150

-stock at end year 1 in ESA95:

      .F332, long term bonds: 1087

      (827 + 124 + 136)

-revaluation account

      .K11: + 87

(-nominal value of Central Government debt in EDP: 1000)

PART III / PRACTICAL ISSUES *(to be developed)*

1) Use of security-by-security databases

In order to get the best estimates of accrued interest, compilers need some precise information. It is essentially the yield prevailing at the time of issuance (taking into account the issue price where it is not at par) and the effective remaining outstanding amounts (considering any exchange or early redemption). For each period of compilation, a relevant rate applied to an exact average stock are to be known. Otherwise, there is a risk that the effective payment of interest would not fit the reinvestment of accrued interest in the financial account. Some "false transactions" would appear. Consistency between flows and stocks would be affected.

Concerning securities, all the information may be provided by security-by-security databases that normally record all the features relating to each individual security. These bases may be restricted to securities issued by residents. It would be very useful for the calculation of accrued interest as, according to the "debtor principle", the relevant information relies on the liability side of balance sheets. However, for foreign securities held by residents, there is also a need to get reliable information that could be given by such individual database.

This kind of databases may be very costly, requiring a permanent, quick and complete maintenance, notably where markets are particularly active, with a very large number of issues for several types of negotiable debt instruments. A comprehensive coverage is thus expected in only a few European countries. Generally, short-term instruments (CDs, commercial paper) are more difficult to include, even in the case of General Government. In addition, for the latter, some sub-sectors are generally not or partially covered, as local government units. It must be stressed that a large coverage may be achieved without large-scale databases if they focus on the larger outstanding amounts of securities and the more significant volumes of transactions. There is generally a rather strong concentration on these markets. Thus, individual database could be set up firstly for securities issued by General Government.

For compilers managing their own database (or at the level of the institution they belong to, as Statistical Institute or Central Bank) may be seen rather desirable. However, in some cases and at least for some data (as the original features of the securities), they may turn to "external" databases set up for other purposes. The latter may be private and it some specialised international firms offer such services. They could be used in the case of securities issued by non-residents in order to make reliable estimates of accrued interest on holdings by

residents, recorded as for them through the international investment position. Special attention should also be given to information that could be provided by some international institutions, as the Bank for International Settlements (including individual information on international issues, of which the definition is under review for the Euro zone) and projects currently carried out in the European Central Bank (ECB).

Of course, such individual databases do not exist for loans and deposits, or with a very partial coverage. Thus only global estimation methods or other sources should provide the relevant data.

2) Alternative estimates of accrued interest

Where a detailed database is not available, compilers must provide reliable estimates from other sources of information as surveys, regulatory data, market publications, profit and loss accounts, etc. Only global figures may be provided. It seems important in this case to try to compile at a sufficient level of detail, distinguishing for instance the main categories of securities, where specific features has an impact on the results, the currency used for denomination, the spreads.

From a general point of view, for securities, compilers should get a reliable "idea" about the average time passed since the instruments were issued in order to apply to relevant stocks (assumed to be correctly known) a rate prevailing at this time. It could be derived from the actual market rate with the delay resulting from this average time. Implementing this kind of "time-adjustment" method would be rather easy.

Information must be permanently updated as market conditions sometimes may suddenly change, affecting significantly the average period. Strong variations of issues (in amount and within a period) could lead to under-estimating or over-estimating effective interest and so the exact cost of borrowing could not be estimated.

In this context, some categories of debt instruments would require specific attention.

In the case of fungible bonds, information is supposed to be available, even where no database including each tranche is available. Issuers of such bonds are rather in a small number, largely concentrated in General Government sector. In most countries, it is a technique used by the State. Information is available through market releases and compilers should be in a position to identify the rate of interest to be applied from the liability side, possibly in the form of a global weighted average discount/premium.

For strips, in absence of complete database, market information would normally allow making global estimates. Finally, there is only a need to identify the underlying bond and to know the rate prevailing at the time of issuance of the latter, possibly taking into account an average discount/premium where several tranches were created. In a first stage, compilers could focus on a selection of strips representing the main share in transactions.

Concerning short-term securities, coverage in individual databases is likely to be partial. Except for Central Government, whose Treasury bills generally represent a main vehicle of transactions on money markets, accrued interest would be calculated by applying an estimate rate on the average relevant outstanding during a period. Exact references and spreads could be determined through reliable surveys. There is a crucial point on stocks. As the maturity of a large number of these instruments is less than three months, stocks cannot be determined only as the average between two end-year points and, even, two end-quarter points. A sudden and short increase of issues within a period could lead to an underestimate of accrued interest.

For floating rates, one specific problem is measuring the level of exact spreads according to the issuers' quality. Using only money market reference, normally based on lowest risks (as first ranking banks) would not be relevant where spreads are usually rather large. This information may be available through surveys or different market sources. In addition, cash payments could be a good proxy for accrued interest, notably where floating rate bonds are mainly set on a quarterly basis. In regards to loans and deposits, a great number of references may be used, with a large range of spreads due to the quality of debtors/creditors and various payment practices for interest. In addition, in the case of some loans, the rate can float only under the condition of a minimum change in the index and within specific upward limits. Individual information is not available and in this case only global information can be used provided that relevant categories of loans or deposits are clearly distinguished where any specific feature would have a significant effect on the amount of interest.

Assuming that principal amounts are correctly recorded (at nominal value) and that reliable information is available for other flows (for change in exchange rates and other change in volume), from various other sources, it could be possible to check the quality of estimates relating to accrued interest on loans and deposits. Any difference between the change in stocks corrected by other flows and the transactions would mean that a part of the reinvestment of accrued interest has not been offset by actual payments. An adjustment could be entered both in the property income and in the financial account.

3) Allocation of accrued interest to holding sectors

In the compilation process, the first stage is to determine the amount of accrued interest from the point of view of the debtor, on the basis of their liabilities, according to

above mentioned methods. In a second time, this amount must be distributed between the relevant counterpart sectors. Finally, accrued interest on financial assets managed or issued by non-residents and held by residents has to be estimated.

Thus, for instruments covering debts of residents, compilers should be in a position to identify exactly the counterpart sectors. This raises undoubtedly a more general issue concerning reconciliation of assets and liabilities in financial accounts. It may be realised by different ways, depending on the various sources used for compilation.

On this point, situation seems rather different between countries and within them for institutional sectors. Some satisfying detailed information is generally available through regulatory forms, for the financial sector and, by using administrative sources, for units classified in General Government. For other sectors, financial statements may be used directly but in most cases surveys, on holders or on custodian agents where it seems to be relevant. Another source may be profit and loss accounts provided that interest is quite separable from capital gains for all portfolio elements. It is often difficult for trading portfolio.

In addition, there is a risk to make adjustment on sectors for which information is more difficult to get or derived from other sources as it is the case for non-financial corporations and specially households. However, this would have no impact on the consistency between non-financial and financial accounts as both interest in the property income and the concomitant reinvestment in the financial account are recorded on an accrual basis. But, the question of offsetting payment would lead to distortions between flows and stocks for these sectors.

A major point is in fact identifying some categories of instruments in the assets side where the allocation of accrued interest would require specific information. For instance it is the case for some securities as fungible and strips. For fungible, it is clear that there is no sense to identify in the assets side the individual tranches as only the complete line of the bond may be identified. Accrued interest should so be allocated in proportion of the holdings for the line. Concerning strips, the problem is that the new securities are individually traded and included in portfolio. The corresponding underlying bond (basis of the estimation of accrued interest) may be split between investors classified in different sectors. Some methods allow measuring in terms of non-stripped bond the different strips held by the investors. It would provide a ration applied to the global amount of accrued interest relating to the underlying bond.

Compilers would be in a more delicate position where only global information on securities holdings would be available, even for sectors like financial institutions and non-residents that realise a large part of transactions. In this case, specific surveys (on samples of investors) could provide a proxy measure of holdings for some categories of assets, completed

by some specific hypothesis. For instance, it may be assumed that investors tend to hold portfolios that reflect the structure of the total issued amount of bonds of one category. This hypothesis would apply to bonds issued by non-residents and held by residents, considering in the more "neutral" way that the latter hold a portfolio with the average maturity of the bonds issued by non-residents, according to some features as the currency used for denomination.