

**Seventeenth Meeting of the
IMF Committee on Balance of Payments Statistics
Pretoria, October 26–29, 2004**

Interest on Debt Securities

**Prepared by the Statistics Department
International Monetary Fund**

The views expressed in this paper are those of the author and should not be attributed to the International Monetary Fund, its Executive Board, or its management.

BALANCE OF PAYMENTS TECHNICAL EXPERT GROUP (BOPTEG)

RESULT OF THE ELECTRONIC DISCUSSION (SEPTEMBER 2004)

(1) Topic: **Interest on Debt Securities**

(2) Issues: See BOPTEG Background paper # 20 (Interest on debt securities: Reflections on the debtor and creditor approach), BOPTEG Issues papers # 20A and 20B, and BOPTEG Outcome paper # 20.

The BOPTEG discussion took place by e-mail during September 2004. As agreed at the June 2004 meeting of the BOPTEG, De Nederlandsche Bank (DNB) prepared a background paper in support of its position not to reopen this issue. The DNB paper and other relevant documents were circulated to BOPTEG members asking their views (1) on DNB's paper, and (2) on whether the Committee should reopen the debate on interest on debt securities.

(3) Results of the discussion:

Eleven members responded. BOPTEG members found the DNB paper a very useful contribution to the debate noting that it presented key aspects of the debate and brought up important issues in favor of the debtor approach.

Six members (Estonia, Namibia, Poland, Thailand, USA, and Eurostat) preferred not to reopen the debate, citing mostly that no significant new ideas have emerged. One member noted that this issue would require a fundamental discussion (falling beyond the scope of the present SNA revision), and thus a proposal to tackle the issue after the SNA revision would seem more feasible.

Five members (Australia, Chile, Japan, and United Kingdom (2)) stated that the Committee should seek to reopen the debate on interest on debt securities in terms of the SNA review. One member suggested that the new standards should discuss the subject in depth and take into account the developments in markets since the current manuals were written and likely direction of changes in the future. Some members noted that the issues raised under interest accrual carry wider implications within the SNA framework which have not yet been fully explored and proposed an international workshop on these issues as a legitimate way forward to resolve the debate.

BALANCE OF PAYMENTS TECHNICAL EXPERT GROUP (BOPTEG)

OUTCOME PAPER (BOPTEG) # 20

JUNE 2004

(1) Topic: **Interest on Debt Securities**

(2) Issues – see BOPTEG Issues Paper # 20A and 20B

(3) Recommendations:

(i) While majority of those who spoke supported the creditor approach, some other speakers supported the debtor approach for defining interest on debt securities in international statistical guidelines. One member thought that although conceptually the creditor approach may seem more appropriate, it would be preferable not to reopen the issue at this time. Another member argued that the debtor approach is preferable and there were no new circumstances since the *1993 SNA/BPM5* were prepared to justify reopening the issue. Several noted concerns that this issue may open new issues on income in general. It was also noted that as the debate previously was raised in the context of debt securities, a wider perspective is needed to assess the impact of both approaches (for example the analysis should also include nontradable and index-linked debt instruments).

(ii) No clear consensus emerged on whether to seek to reopen the debate among national accounts community. Some members strongly felt that the issue should be reopened while others argued that there is no sufficient new information since the *1993 SNA/BPM5* to justify reopening the issue.

(iii) The decision of the Advisory Expert Group on National Accounts (not to reopen the issue for the review of the *1993 SNA*, taken at its February 2004 meeting), the IMF Statistics Department's position (that the *1993 SNA* follows the debtor approach), and the approach proposed in the *Annotated Outline for the Update of BPM5* (that interest in the system is recorded following the debtor approach with data according to the creditor approach as memorandum or supplementary items) were noted.

(iv) The group agreed that

- BOPTEG members be provided with relevant technical documents on this issue (from the list in the BOPTEG issues paper # 20A) and provide written comments by mid September to BOPTEG. This will include a background paper to be prepared by De Nederlandsche Bank on this issue. The result of these additional discussions will be reported also to the Committee;
- the Committee could be requested to decide whether to reopen the issue.

(4) Rejected Alternatives:

None.

(5) Questions for the Committee:

- (i) *What is the view of the Committee on whether to reopen the debate on interest on debt securities? See 3(ii) above.*

**IMF COMMITTEE ON BALANCE OF PAYMENTS STATISTICS
BALANCE OF PAYMENTS TECHNICAL EXPERT GROUP (BOPTTEG)**

ISSUES PAPER (BOPTTEG) # 20A

THE ACCRUAL OF INTEREST ON DEBT SECURITIES

The views expressed in this Paper are those of the authors and do not necessarily represent those of the Bank of England and the European Central Bank.

**Prepared by Mr. Chris Wright and Mr. Carlos Sanchez-Muñoz
Bank of England/European Central Bank**

April 2004

BALANCE OF PAYMENTS TECHNICAL EXPERT GROUP

ISSUES PAPER (BOPTEG) # 20A

THE ACCRUAL OF INTERESTS ON DEBT SECURITIES

1. Current standards

When new international statistical standards were published in 1993, one of the major changes to the recommended presentation of the System of National Accounts and the Balance of Payments was the adoption of accruals recording for income and expenditure. However, as countries began to implement these standards, questions were raised about their exact interpretation in respect of interest flows associated with tradable debt.

Paragraph 7.93 in the *1993 SNA* defines interest as "... the amount that the debtor becomes liable to pay to the creditor over a given period of time without reducing the amount of principal outstanding." This guidance is amplified by both the SNA and the BPM for the case of fixed coupon debt securities but the two texts are widely viewed as inconsistent and have given rise to differences of interpretation amongst compilers.

SNA paragraph 7.100 says of bonds and debentures, that the amounts of the fixed or variable money incomes or coupon payments due for payment within the accounting period are treated as interest payable and receivable. It goes on to explain that interest consisting of the difference between the face value and the issue price must be distributed over accounting periods. There is no prescribed method for this attribution.

Two main interpretations of this SNA guidance have been proposed. Under the first, interest on either a fixed or a zero coupon bond is determined by the contractual arrangements and market conditions at the time of issue. Under this interpretation, interest accrues at a constant rate throughout the life of the bond. For bonds issued at par, ie where the issue price is equal to the price at which the bond will be redeemed at maturity, the interest accrued over the life of the bond is equal to the coupon payments receivable/payable. For bonds issued at a discount, the accruing interest also includes the uplift in the value of the bond as it

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approaches its value at maturity. This interpretation is commonly referred to as the “debtor approach” because it views the accrual from the perspective of the issuer of the debt. It may also be thought of as a historical cost measure, because interest always accrues at the yield prevailing when the bond was issued.

Under the second approach, interest always accrues at the current yield to maturity. Whenever market conditions change, the price of the bond changes – a holding gain or loss (para 12.111) – and a new market yield is established. Under this approach, the accrual of interest is equivalent to applying the market interest rate for such bonds to the prevailing market value. As a consequence, this approach draws a clear distinction between interest and the contractually agreed cash flows – there is no requirement for interest accruals over the life of the bond to equal the cash flows associated with payments of coupon and/or the uplift in value associated with any discount present when the bond was issued. This interpretation is commonly referred to as the “creditor approach” although its alternative title, “market approach”, may be more descriptive as the method is fully consistent with the market value principle for the valuation of assets and liabilities on the balance sheet.

Within the BPM, paragraphs 121 and 283 also specify that the difference between the issue price of zero coupon and other deep discounted bonds and the value at maturity should be treated as interest over the life of the bond. However, if these securities are traded - prior to their maturity - in the secondary market, prevailing rates that reflect the difference between the new owner's cost and the value at maturity should be used for the subsequent recording of interest on these securities.

This guidance has led to a third approach in the literature. The “acquisition approach” is similar in concept to the debtor approach but views the generation of interest from the perspective of the holder of a bond. Interest over the holding period of the bond is based on the (market) yield at the time the bond was acquired.¹ The acquisition approach to interest measurement is a standard technique for interest revenue recognition under historical cost

¹ In this regard, the creditor and the acquisition approach deliver the same results at the moment the security is acquired. However, according to the acquisition approach, the applicable yield does no longer vary unless an additional transmission takes place.

and current mixed value commercial accounting standards, but is not normally referred to as a candidate for use within the SNA framework.

The BPM is more commonly considered to favour the creditor approach. Explicit support for this view can be found in the IMF BoP Text Book (paragraphs 401 and following) and in the BPM Compilation Guide (paragraph 620).

2. Concerns/shortcomings of the current treatment

Choosing between these alternatives has led to the emergence of strongly held positions. For the most part, these have focused on the conceptual consistency of the debtor and creditor approaches with the SNA framework, but important concerns also surround practical aspects of data compilation, and the analytical impact of any change in treatment on data users.

Documenting the competing arguments over the conceptual consistency of these approaches with the SNA framework goes beyond the scope of this short review. However, to understand why the choice matters, it is necessary to be aware of the principal claims made by supporters of the two competing approaches.

Critics of the debtor approach argue that use of a historical cost yield to derive interest flows gives rise to inconsistencies with the market value recording of asset and liability positions under the SNA framework. Specifically, it is argued that after a change in market interest rates, the debtor approach is obliged to use the SNA revaluation account as a balancing account to absorb changes in value which are not price changes but which the debtor method does not acknowledge as a transaction. In addition, critics argue that an agent purchasing a bond in the secondary market would not recognise the flows recorded as interest under the debtor approach since the market return at the time of acquisition would normally be different (and maybe are not even known by the new purchaser).

Critics of the creditor approach commonly argue that it confuses holding gains/losses with income and ignores the contractual arrangements (fixed coupon payments) set at the time of issue. It is argued that the accruals principle is intended to change the time profile of flows but not their magnitude.

At the heart of these arguments lies a question about the interpretation of contractual coupon payments. Supporters of the debtor approach interpret these fixed payments as implying that accruing interest is also fixed – bonds are after all commonly referred to as fixed interest securities. By contrast, supporters of the creditor approach argue that interest accruals and coupon payments are separate transactions, given that interest accrues continuously. Any coupon payment is therefore a repayment of principal.

The arguments for and against these two alternative treatments have also been linked to concerns about data collection. In principle, interest income can be determined following three different compilation methods²: direct collection from reporters; calculated by the compiler security-by-security (s-b-s); or estimated by the compiler using an aggregated approach, for example by applying benchmark yields to aggregate stocks by categories of securities.

- (i) Direct collection methods are typically based on aggregated data from business accounting statements. In these cases, the debtor approach is easier to implement for securities issued (ie liabilities) given that this is the criterion followed by most international standards for the issuer side. Nevertheless, the same business accounting standards follow rules that, applied to the holders of securities, deliver results in line with the acquisition approach (or, in some cases, to the creditor approach). This will give rise to reporting asymmetries between assets (credits) and liabilities (debits).
- (ii) For systems based on s-b-s information, neither recording convention should be regarded as superior from a practical viewpoint. In principle, price/interest rate information, at inception or from the secondary market, could be available. However, in practice, limitations may exist for either method: s-b-s systems are unlikely to hold full information on the prices at which securities were first issued so that estimates of interest under the debtor approach may be based solely on coupons for such securities; while a practical difficulty for the creditor approach could be the need to maintain a timely and frequent access to market yields on individual securities.
- (iii) Finally, for compilation methods based on aggregated stocks, estimates using the creditor approach seem easier to carry out. In principle the requirements for the creditor approach would be a sufficiently detailed split of stocks by residual maturity, currency, issuer sector, country of the issuer, etc. to which the observed benchmark market yields

² See more details in chapter 5 of the final report of the ECB Task Force on Portfolio Investment Income.

would be applied at any moment in time. Conversely, the applicability of the debtor approach to aggregated systems would be hardly feasible, due to the unlikely availability (or at least at any reasonable cost) of the two components necessary for these calculations, ie (i) benchmark yields based on nominal interest rates at inception (ie including both explicit coupon and premium/discount); and (ii) stocks valued at nominal prices, provided the general guideline for the compilation of stock statistics is the use of market values.

The importance of the decision on the choice of approach may in the end be judged by the materiality of its impact on resulting data series. Some empirical testing of the alternative treatments was undertaken by the ECB Task Force on Portfolio Investment Income, leading to clear indications that the quantitative differences could be significant, in terms of potential policy implications, under certain market conditions – for example following a prolonged period of increasing or decreasing market rates.

Accordingly, establishing a conceptually coherent framework for interest measurement, and providing users with the best available estimates of this treatment, must be the ultimate objective of the current debate.

3. Points for discussion

Following the UNSC's March 2003 ruling that the SNA 93 TEXT supports the "debtor" treatment, the Advisory Expert Group (AEG) of the ISWGNA, meeting in February 2004, ruled out further discussion of this topic within the SNA revision process. This places BOPTTEG in a difficult position. The BPM text does not support the debtor approach and many BoP compilers, particularly within Europe, have interpreted the BPM guidance as supporting the creditor treatment.

BOPTTEG must decide whether to recommend a change to the current BPM treatment to bring it into line with the AEG decision, or whether to defend the existing BPM treatment and to seek to reopen the debate among National Accounts compilers.

The authors of this paper favour the second of these alternatives. The creditor or market approach is considered to provide both an analytically coherent and a practical approach to interest measurement. By contrast, the authors consider the debtor approach to be incompatible with the market value framework of the SNA/BPM.

4. Bibliography

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IMF COMMITTEE ON BALANCE OF PAYMENTS STATISTICS
BALANCE OF PAYMENTS TECHNICAL EXPERT GROUP (BOPTTEG)

ISSUES PAPER (BOPTTEG) # 20B

INTEREST ON DEBT SECURITIES

International And Financial Accounts Branch
Australian Bureau of Statistics

**The views expressed in this paper are those of staff within the
International and Financial Accounts Branch and do not necessarily reflect those
of the Australian Bureau of Statistics**

May 2004

BOPTEG Issues Paper

Interest on Debt Securities

Current international standards for the treatment of the issue

There is disagreement on the interpretation of current international recommendations on this issue. The SNA93 does not deal explicitly with the situation of changing interest rates and the measurement of income flows on tradeable securities. The proponents of the debtor approach interpret the SNA as recommending that approach. The proponents of the creditor approach start with the SNA principle of the market price valuation of assets and liabilities, and argue that the creditor approach is consistent with this principle and that the debtor approach is not. They do not agree that the debtor approach is the incumbent treatment.

The debtor approach is consistent with the historic cost valuation of assets and the creditor approach is consistent with the valuation of assets at current market prices, and there is a close relationship between this debate and that on the market valuation of financial assets.

Concerns/shortcomings of the current treatment

Inconsistent or incorrect measurement of interest flows and the related valuation of assets and liabilities can undermine the main function of economic accounts, that is to quantify and monitor economic behaviour. Failures to foresee major problems such as the Asian crisis is partly due to these shortcomings. Inconsistent and incorrect measurement can result in asset and liability pairs being recorded at different values, and a breakdown in the ability to reconcile the changes between opening and closing levels of assets and liabilities. Problems also arise in reconciling observed asset values and income flows on those assets. The adoption of methods which diverge significantly from market and commercial practices can undermine the credibility of the System.

Possible alternative treatments

Proponents of the creditor approach argue that the approach:

- is consistent with commercial accounting principles
- is consistent with investor behaviour
- provides a meaningful reconciliation between income flows and changes in market values as shown on the balance sheet;
- does not require the introduction of conceptually inexplicable adjustments in periods when the prevailing interest rates are different to the rate at the time of issue
- can be applied in a coherent, consistent way to any financial instrument, for instance indexed debt securities
- is easy to implement in practice using data on asset values available from business accounts and current yield information
- is consistent conceptually with the trend, evident in emerging international accounting standards, towards "fair value" valuation of assets and the use of "effective yields" to calculate interest flows.

The arguments for the creditor approach have been represented in papers submitted to the Electronic Discussion Group, as well as in *Statistical Treatment of accrual of interest on debt securities*, IMF working paper WP/01/132 by John Joisce and Chris Wright. References are at the end of this paper.

Proponents of the debtor approach claim that the approach:

- is consistent with SNA93
- reflects the contractual obligations of the debtor, which are passed on to new creditors upon sale of a security
- generates results which transactors recognise, reflecting actual commercial transactions such as coupon payments

The merits of the debtor approach are presented in papers submitted to the Electronic Discussion Group, in particular in the IMF paper, *Income from Bonds: The 1993 SNA Treatment* by Lucie Laliberté.

This issue has already been debated at length without consensus being reached. An electronic discussion has been held (see reference below).

Questions/points for discussion

- is there any point in continuing the debate on the interpretation of SNA93 or is it preferable to proceed with arguments based on the basic SNA/BPM principles of market valuation of assets and the coherence of stocks and flows?
- should the market value principle, which is fundamental to the SNA/BPM, be applied to interest income, or should interest be treated on an historic cost basis?
- can the treatment of interest on debt securities be decided in isolation of the broader discussion of the treatment of income and the measurement of financial services in the SNA/BPM?

Supplementary information

The arguments for the adoption of the debtor or creditor approach to the recording of income flows on tradeable securities have been spelt out in several papers. The Electronic Discussion Group is available at <http://www.imf.org/external/np/sta/na/interest/index.htm> A full discussion of the issues is in *Statistical Treatment of accrual of interest on debt securities*, IMF working paper WP/01/132 by John Joice and Chris Wright which is available at <http://www.imf.org/external/pubs/ft/wp/2001/wp01132.pdf> The summary by the moderator of the EDG contains references to a large amount of background material.

IMF Committee on Balance of Payments Statistics
Balance of Payments Technical Expert Group (BOPTeG)

BACKGROUND PAPER BOPTeG ISSUES # 20

Interest on debt securities

Reflections on the debtor and creditor approach

De Nederlandsche Bank
Background paper prepared by the Balance of Payments and Financial Accounts Department

Frank E.M. Ouddeken
Raymond F.D.D. Chaudron

September 2004

1. Introduction

1. The Advisory Expert Group on National Accounts concluded in its February 2004 meeting that in the System of National Accounts (SNA) interest income on tradable debt securities should be recorded following the so-called 'debtor approach'. At the June 2004 BOPTTEG meeting the issue was discussed of reopening the debate among the national accounts community. The views of the BOP experts with regard to this issue were widely diverging. A majority expressed preference for accruing interest income on tradable debt securities on the basis of the current market rates of interest, irrespective of the originally agreed interest rate at the time the securities were issued. This approach is known as the 'creditor approach'. A minority, to which the Dutch Central Bank (DNB) belonged, expressed preference for the so-called debtor approach, in which interest income is accrued on the basis of the implicit effective interest rate (yield to maturity) at issue of the security (based on both the coupon and the premium/discount margin at issue). DNB was asked to provide a background paper in support of its position not to reopen this debate.

2. Many of the arguments with regard to this issue have been summarized in documents that were discussed at the BOPTTEG meeting in June. A repetition of all these arguments of either approach seems therefore not very useful. However, we would like to shed some light on a number of aspects that seems to have acquired less attention so far. Our focus will mainly be directed to the question "What do we want to measure in the National Accounts/BOP and what are the analytical needs". Most of our considerations are related to the treatment of the dimension of time in the System, as the creditor and debtor approach seem to be based on different views there.

3. We will restrict ourselves to the debtor and creditor approach only. The so-called 'acquisition approach' is neglected, as it is to be regarded as conceptually inferior. The acquisition approach will result in an asymmetrical treatment of income between the issuer and the holder of the security as soon as the debt is traded in the market at an interest rate different from the rate at issue.

4. No exegesis of the Compilation Guide and BOP Textbook, External Debt Manual will be given with the aim to 'proof' views. Apparently, a number of differences in the wording used (or even alleged inconsistencies) between all these sources and the SNA/BOP can be found, as a reflection that the debate on this issue was already going on for a number of years. Further elaboration on the exegesis would merely add to the semantic part of the discussion. We will restrict ourselves mainly to the SNA/BOP as the conceptual framework.

2. The debtor and the creditor approach compared

5. In order to highlight the essential differences between the two approaches we will use the same example as presented in Table 3 of the Joice/Wright paper prepared for the October 2000 BOPCOM meeting (page 15-16). The example concerns a five-year bond with a face value of \$ 1000, issued at par value and paying a coupon of \$ 50 each year (implicit effective

interest rate, or yield to maturity: 5%). At the end of year 3 the price of the bond suddenly drops to \$964, which implies a current (= market) yield to maturity (CYTM) of 7% from that moment on. The recording of all transactions involved in buying and holding this bond over the entire lifetime is presented in a BOP/IIP format in **annex 1**.

6. Both the creditor and the debtor approach fully agree on the end of period (IIP) value of the bond in each of the five years. It is the current market price in each year, which is equal to the fair value of the bond. Also the treatment of the change in the value of the bond at the end of year 3 due to the rise in the market rate of interest is the same in both approaches. This change should be recorded in the Revaluation Account as a nominal holding loss. Both approaches would record the same transactions in the BOP during the first 3 years.

7. The difference between the two approaches is related to the period after the change in the market rate of interest. The subsequent maturing of the bond to its redemption value is treated as revaluation changes under the debtor approach. Under the creditor approach these revaluation changes are not needed, as the application of the current market rate of interest for the calculation of the accrued interest income (minus the coupon payments, or 'coupon redemptions') exactly equals the changes in the market value of the bond (see annex 1). The justification for this result given by the creditor approach seems to run as follows:

Revaluation changes under the debtor approach are unjustified because neither market conditions (i.e. the market rate of interest) nor perceptions about the creditworthiness of the issuer did change during the last two years. Therefore, there is no rationale for recording revaluation changes in the remaining years to maturity (years 4 and 5). Moreover, consistent application of the principles of market price valuation and accrual accounting for income demands the calculation of accrued interest income that results in a yield that differs from the implicit effective interest rate at issue.

8. It is important to note that the creditor approach records more income over the entire life of the bond (\$286) than the debtor approach (\$250) does (see annex 1). This corresponds with the higher rate of interest in the market during the last two years of the life of the bond. However, if the accrued interest income plus all revaluation changes are taken together as a measure for the total return on investment (the 'full fair value income'), both approaches fully agree with each other (\$250). This is even true for each of the individual years during the lifetime of the bond. By implication, either the debtor approach treats part of the income as revaluation changes, or the creditor approach treats part of the revaluation changes as income. In this respect it is important to note that the debtor approach results in a total income over the entire life of the bond that exactly equals to the 'full fair valuation income' (\$250), while the creditor approach does not (\$286).

9. As a consequence of accruing income on the basis of the current market rate of interest, the creditor approach records net financial transactions over the years in which the bond matures to its redemption value after the change in the rate of interest. Or more precisely, the holder (issuer) constantly provides additional financing (redemptions) to the issuer (holder) as long as the current market rate of interest stays above (beneath) the coupon rate. The same phenomenon can occur under the debtor approach, but here only for the premium or discount

(redemption margin) that was realized at issue of the bond (and thus also for zero-bonds), not for premiums and discounts that developed after the issue of the bond.

3. The creditor approach further considered

10. The arguments used in favor of the creditor approach seem to be based on three main considerations:

- No need to treat the maturing of bonds as revaluation changes;
- Consistent application of the principle of market price valuation;
- Consistent application of the principle of accrual accounting;

We will deal with these considerations one by one.

3.1 *The need for revaluation changes*

11. According to the creditor approach the maturing of a bond to its redemption value, after the occurrence of a change in the market rate of interest, cannot be regarded as price changes of the asset, because wider market conditions are supposed to be unchanged as long as the market rate of interest remains the same. This view is based on a misperception of the nature of the rate of interest. The interest rate is not the price of a bond or of any asset or liability. The interest rate is not a price like the price of goods and services. The interest rate is a conversion factor that relates current prices (for goods, services, assets and liabilities) to all future prices at different periods of time. As assets live, by definition, for more than one accounting period, time is a crucial factor for the determination of their prices. By implication, the price of an asset may change as time elapses, because there is a change within the dimension of time. Therefore, the price of an asset may change as the remaining lifetime of the asset changes, although the rate of interest remains stable in the market. As long as the current market conditions differ from those at the time of issue (or inception) of the asset, the price of the asset will have to change as time elapses, in order to equilibrate inter-temporal supply and demand.

12. The validity of the recording of revaluation changes under the debtor approach is also questioned in the following way: 'If the losses were already expected (for the years 4 and 5 in the example of annex 1), should there not have been an impairment write down offsetting the gain?'³ This suggestion is hard to understand. First of all, there is no disagreement on the value of the stocks between the debtor, the creditor and the full fair value approach. Secondly, the question exemplifies a neglect of the importance of the dimension of time in the valuation of assets. We can think of no single impairment test that would result in a value of the bond that deviates from its current market value, *only because of the fact that in the*

³ Chris Wright, *Income from Bonds: The 1993 SNA Treatment – A response*, Bank of England.

foreseeable future the value of the asset is known to change. In fact, it is just the other way around. Because the market participants have taken into account the future (redemption) value of the bond, the current value is arrived at in the market. This is precisely what one would expect in efficient markets! All relevant information, including the path to the redemption value, is absorbed in the current market prices of the assets.

3.2 *Consistent market price valuation*

13. Market price valuation is indeed to be regarded as a general principle underlying the whole SNA/BOP framework. The perception of those who are in favor of the creditor approach with regard to the valuation issue is best expressed in the following way: “Once the designers of the System chose to adopt market prices as the underlying basis for all aspects of the system, not just transactions but balances as well, the creditor approach for the calculation of interest flows became the only method consistent with the System’s overall integrity”⁴. It should be noted that this quote does not use the wording ‘*current*’ market prices as the basis for all aspects of the system. But the use of ‘*current*’ prices is the real issue of the debate, more specifically; there is only disagreement with regard to the choice of the market rate of interest.

14. The valuation of balances in the System is not disputed by anybody: “The appropriate valuation basis for assets and liabilities is the price at which they might be bought in the markets at the time the valuation is required.” (SNA 2.69).

15. For transactions the issue is much more subtle. “Transactions are valued at the price actually agreed upon by the transactors. Market prices are thus the basic reference for valuation in the System. In the absence of market transactions, valuation is made according to costs incurred or by reference to market prices for analogous goods and services.” (SNA 2.68). Two observations can be made with regard to this paragraph. First of all, although market prices are the basic reference for the valuation of transactions in the System, no clear statement is made that transactions should be valued at current market prices in all cases. For goods and services this seems not to be a real issue. But for interest it does matter, because the aspect of time is involved. Secondly, in paragraph 2.68, in which the general principles for valuing transactions are defined, only reference is made to goods and services. Nothing is said about the market price of income transactions.

16. BPM5 provides some additional information in paragraph 92: ‘A market price is to be clearly distinguished from a price quoted in the market, a world market price, a going price, a fair market price, or any price that is intended to express the generality of prices for a class of supposedly identical exchanges rather than a price actually applying to a specific exchange.’

⁴ Chris Wright, Measuring interest accruals on tradable debt securities in economic and financial statistics, Bank of England Quarterly Bulletin, Spring 2001.

Apparently, the application of some sort of an average value of the rate of interest for the calculation of a class of income transactions is clearly not regarded as a market price suitable for the valuation of the transactions.

17. Throughout the whole SNA no single statement or even clear indication can be found which rate of interest should be used for the calculation of income. The actual flows of income are traditionally understood to be the historically agreed obligations for all components of income, such as the compensation of employees and the income on debt. Employees will get compensation according to their contract, irrespective of the current wage rate in the labor market, although they could hypothetically renegotiate their contract every (minute of the) day. The same applies to interest income.

18. This traditional understanding is now challenged by the creditor approach by the view that, due to the tradability of the securities, both the issuer and the holder are constantly evaluating and accepting the new conditions in the market as if they were concluding new arrangements at the 'current' market conditions on a 'permanent' basis. Put in another way, the creditor approach is based on the perception that the income on tradable debt has, effectively, no history. In fact the approach is based on the implicit hypothesis that all tradable debt could constantly be refinanced at the current (or holding period average) market conditions between the holders and the issuers. We believe this is the crux of the matter.

19. The creditor approach is based on the implicit assumption that both the issuer and the holder of the securities are *not* locked into the financial conditions of the security at the time it was issued. Indeed, for the individual *holder* this is true. Each holder has the opportunity to sell the security whenever he wants to do so. Therefore, the individual holder is indeed not locked into the conditions of the contract. This is essentially the reason for existence of tradable debt. But on a macro-economic level this argument does not hold. As long as the debt is not redeemed some holder has to accept the specific characteristics of the asset (in terms of the specific payment scheme and the foreseeable valuation pattern). The price of the bond will equilibrate the characteristics of the instrument (such as the interest component) with those of other investment opportunities, including foreseeable changes in its value due to the maturing of the bond. This is the way how participants in the bond market perceive it.

20. The *issuer* would not be locked in the conditions of the contract if he could buy back all bonds instantaneously. For that to be true certain rather strict conditions need to be met. The market for each and every individual bond would have to be:

- totally liquid (i.e. all debt is constantly available in the market at the current market price);
- without any transaction costs and;
- without any legal constraints for repurchasing tradable debt.

These conditions are far from being met in reality. All debt is not instantaneously available in the market, transaction costs are sometimes quite substantial and most bonds are issued with the explicit condition that early redemption is not possible in order to protect the investor and secure his right on the investment income over the entire original term to maturity.

21. Some bonds are indeed early redeemable, but this is a specific financial instrument, known as a ‘callable bond’. For bonds issued at par, the callable bond will require a higher coupon than the non-callable bond. In any case, the callable bond has a higher yield to compensate the buyer for the possibility of the bond being redeemed before maturity⁵. Therefore, it seems fully unjustified to accrue interest based on the hypothesis that all bonds are instantaneously redeemable and as if refinancing could take place without economic costs only because of the tradability of bonds. In fact the creditor approach uses the words ‘tradable’ and ‘callable’ as synonyms⁶. So, the economic actors have to drag on the historical conditions into their current economic transactions, including income transactions. Therefore, the economy as a whole is locked into the financial conditions of the securities that were issued before.

4.3 *Consistent accrual accounting*

22. Accrual accounting is a method of recording that matches the cost of capital with the provision of capital. Both the creditor and the debtor approach accrue continuously interest over the holding periods of the assets/liabilities. The only difference between the two approaches concerns the right measure of the ‘cost of capital’. The assertion made by the creditor approach of being the more consistent approach in accepting the consequences of accrual accounting is therefore hard to understand as an argument in its own right. The creditor approach may give the impression of being the more consistent in accepting the principle of accrual accounting, because of a constant provision of additional financing (or additional redemptions). However, this outcome is solely the consequence of the application of the current market interest rate instead of the yield to maturity at issue. It has nothing to do with the principle of accrual accounting as such.

23. Accrual accounting implies that the economic subjects are constantly (every minute of the day) ‘transacting’ the flow of interest income. Under the debtor approach this flow is fully defined by the characteristics of the financial instrument and the conditions in the

⁵ The transaction costs (in terms of income) for having the right of early redemption of a bond are not negligible and can be assessed by comparing the yield of a callable bond and an otherwise identical bond that is not callable. A callable bond gives the issuer the option to buy back debt at a specified price before maturity. The call provision gives the company flexibility in its financing: if interest rates should decline significantly, it can call the bonds and refinance the issue at lower interest costs. This privilege comes at a price, the price of a call option.

⁶ ‘However, an implicit, and erroneous, assumption is that the security will remain in the market until it matures – i.e. that the issuer either cannot or will not **redeem** the liability early. If this assumption were true, then the issuer’s liability cannot be strictly viewed as **tradable**...’ John Joice and Chris Wright, Calculating the Accrual of Interest on Tradable Debt Securities, Thirteenth Meeting of the IMF Committee on Balance of Payments Statistics, Washington, D.C., October 23-27, 2000, p. 7-8.

financial market at the time of issue. Under the creditor approach this flow of income seems to be defined by the 'current' market value of the bond and the 'current' market rate of interest (or, more precisely, the 'current' yield to remaining maturity of that bond). However, the word 'current' indicates that neither is ever fixed over the holding period. Every minute (or second?) of a holding period there will be a different 'current' market value of the bond and there will be a different 'current' yield to maturity of that bond. As a consequence, the calculation of total income over the holding period will have to be the aggregation of an endless number of infinitesimal flows. Moreover, without the bond actually being traded one cannot observe the actual new yield and has to use some representative market rate, a going rate, a fair market rate, or any rate that is intended to express the generality of rates.

24. As it is not feasible to apply the creditor approach in its pure form an approximation of the concept of accrual accounting according to the creditor approach is therefore necessary. In practice these problems with the creditor approach are overcome by fixing both the market value of the bond and by choosing a yield to remaining maturity for a particular period of time. This may be either the values at the beginning of the holding period or some holding period average. If the creditor approach is made operational in this way, some characteristics of the instruments are frozen over the compiling period.

25. One of the consequences of accruing income on the basis of the current market rate of interest compared to the yield to maturity at issue will be a change in the sectoral and national savings surpluses. Under the creditor approach a drop in the market rate of interest (e.g. due to a drop in inflationary expectations or monetary conditions) will instantaneously raise the profitability of the debtor sectors/nations for a number of subsequent years. This result is accomplished without any economic transaction being undertaken by the debtor self. It has nothing to do with the nature of financial markets. It is merely a bookkeeping result. The economic actors themselves, however, will not experience this change as an improvement of their economic conditions, because their obligations will remain unchanged. The only difference compared to the debtor approach will be that part of the coupon payments that the debtors have to make are now classified as redemptions⁷. Nevertheless the debtors are still weighed down by the same 'coupon' payment obligations, that they have to finance somehow, irrespective whether these are treated as income payments or as redemptions. The interplay between the economic structure, as it is fixed in the stocks of financial assets and liabilities and the economic process of financing will no longer have a clear link with the process of production and income distribution and financing.

⁷ In case of a sudden rise in the rate of interest the coupon payments fall short of the accrued interest. The reduced profitability of the debtor sectors/nations has no real meaning for financial behaviour, because the need for additional financing is automatically taken care of by the existent creditors.

Annex 1

BOP/IIP recordings of a bond according to the debtor's accounts (BOP sign)

	Creditor approach					Debtor approach			
	Year	1 and 2	3	4	5	1 and 2	3	4	5
Income Account									
Accrued interest		-50	-50	-67	-69	-50	-50	-50	-50
Financial account									
Portfolio Investment – Bonds									
Accrued interest		50	50	67	69	50	50	50	50
Coupon/redemption payments		-50	-50	-50	-50	-50	-50	-50	-50
Net transactions		0	0	17	19	0	0	0	0
Revaluations		0	-36	0	0	0	-36	17	19
End of period market value		1000	964	981	1000	1000	964	981	1000
Currency & Deposits									
Net transactions		50	50	50	50	50	50	50	50
Errors and Omissions		0	0	0	0	0	0	0	0
Memorandum item									
Full fair value income		50	14	67	69	50	14	67	69