

## ACCRUAL RECORDING OF INTEREST REVISITED: WHY THE SNA MUST BE REVISED

### *A comment on the IMF Paper on Interest Accrual*

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### *Introduction*

1. The IMF paper on this subject is greatly to be welcomed as a resolution of this issue is overdue. The IMF paper presents a summary of the different positions and includes a useful numerical example. This note is written in response to the IMF paper, including some comments on the example. The conclusions reached in this paper are very different from those of the IMF. I remain convinced that the ‘creditor’ approach is the conceptually correct one from both an economic and an accounting viewpoint.

2. One of the main advances in the 1993 SNA was the elaboration of an exhaustive and articulated set of accumulation accounts based on a fundamental accounting identity linking the opening and closing balance sheet. The difference between the value of an asset at the start and end of the period must be due to change in the quantity or price of the asset, or both. Quantity changes can be subdivided into those due to economic activities or transactions, which are recorded in either the capital or the financial account, depending on the type of asset, and those due to other factors which are recorded in the “other changes in the volume of assets account”. Value changes due to price changes which, by definition, constitute holding gains or losses, are recorded in the “revaluation account”. The economic significance of the “revaluation account” would be much clearer if it had been explicitly described as a “holding gains account”.

3. None of the accumulation accounts is derived residually from the others. In particular, the revaluation account must not be made to assume the role of a *reconciliation* account by including asset “revaluations” as adjustment items in order to reconcile inconsistencies between the flow accounts and the balance sheets.<sup>1</sup>

### *No interest rate change*

4. The current value of a bond at any point of time is equal to the present (i.e., discounted) value of the remaining future receipts, both coupon interest receipts, (if any) and the final redemption, or face, value (if any). Financial markets value bonds in this

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<sup>1</sup> These points are fully explained in paras. 12.63 onwards of chapter XII of the SNA and also in the Annex to chapter XII. Each of the four accumulation flow accounts (capital, financial, other volume and revaluation) can be estimated independently of any other account in the system.

way on the basis of current market rates of interest and expectations about future interest rates. The SNA values financial assets and liabilities at their market values at the time the balance sheet is compiled and not at their face values at the times they were issued.

5. Consider, first, the case in which no change is expected in the relevant market rate of interest over the life of the bond and none occurs. (Changes in interest rates are dealt with in the next section). Given the interest rate, the value of the bond is determined *at every point of time* from issue to redemption. If the bond is issued at a discount, the value of the asset gradually increases from issue to maturity: if issued at a premium because of high coupon interest, it would gradually fall.

6. The gradual change in the market value of the asset as it moves along its predetermined path is not a price change and does not generate a holding gain. It is interpreted by financial markets, investors, economists and business and national accountants as part of the *property income* receivable by the holder of the asset, (the rest being coupon interest, if any). The amount received by the holder, the creditor, depends on the length of time that the creditor waits to receive it. It is clearly a form of interest. If the market value of the bond exceeds the redemption value (as happens in the IMF's numerical example) and gradually falls over time, the negative interest accruing from the fall in the bond's value must, of course, be more than offset by the high positive coupon interest which is actually responsible for the bond's value exceeding its face value.

7. Despite the fact that the market value of the asset changes between the start and end of the period, there is no entry in the unfortunately named "revaluation" account. When a bond grows in value, the interest accruing is automatically loaned back again by the creditor to the debtor thereby increasing the value of the creditor's claim and the debtor's liability. When the bond falls in value, the negative interest payable by the creditor is automatically used by the debtor to repay part of the outstanding liability. The ensuing lending or repayment is recorded in the financial accounts of both parties, the entire change in the bond's value being accounted for by these entries in the financial account.

8. This method of accounting for the changes in the asset's value over the life of the asset captures the underlying economic realities. Interest is defined in the 1993 SNA as the amount the debtor is liable to pay over a period of time without reducing the debtor's liability or principal outstanding. Despite what is implied in para. 39 of the IMF paper, the principal outstanding is not the face value of a bond. Para. 7.93 of the SNA makes clear that the principal outstanding is the amount that the debtor must pay to discharge the liability *at that time*. It equals the current market value of a marketable bond because the debtor may discharge the liability by repurchasing the bond. The current liability recorded in the balance sheet of the SNA is the market value of the bond and not its face value.

### *Interest rate changes*

9. There seems to be general agreement about the recording of the interest when the interest rate remains unchanged over the life of a bond. Disagreements arise when there are changes in the interest rate. A discrete change in the relevant market rate of interest causes an *instantaneous, discrete* change in the market value of the bond. This constitutes a *price* change as the bond itself is otherwise unchanged in that instant. It changes the amount of the debtor's liability and generates either a real holding gain or loss for the debtor and the creditor<sup>2</sup>. The gain can be realized by one or other party, if desired, as the bond is marketable. The interest rate change must be unexpected. If it had been foreseen in advance, it would have been fully anticipated by the market and no holding gain would occur. In general, interest rate changes are likely to be, at best, only partially anticipated so that they typically cause bond prices to change and holding gains or losses to occur.

10. The market price of a bond changes in response to an interest rate change precisely because *market forces adjust the price of the bond to ensure that the interest accruing of the remaining life of the bond is equal to the new market rate*. Given that the redemption value is unchanged, the holding gain/loss on the bond is equal in value, but opposite in sign, to the resulting change in total amount of interest accruing over the remaining life of the bond. Of course, this does not leave the net worth of the creditor and the debtor unchanged. Moreover, neither party can be indifferent between an instant gain/loss realizable now and an equal amount of interest that is only realizable gradually in the future with the passage of time. Nevertheless, on the so-called 'debtor' approach, it is argued that the amount of interest payable not only over the life of the bond but also in each individual period of time remains unchanged when the price of the bond changes.

### *An interest rate fall*

11. When the interest rate falls by a discrete amount, the market price of a bond rises by a discrete amount (in contrast to the continuous change in the value of the bond *over time* as it approaches maturity). As the redemption value is unchanged, the interest that the creditor expects to receive by holding the bond to maturity is correspondingly reduced. The opportunity cost to the creditor of holding the bond is reduced when the interest that can be earned by selling the bond and investing elsewhere is also reduced.

12. The original issue price of the bond and its market price prior to the interest rate fall become irrelevant when the value of a bond and its movement over time depends entirely on future receipts and expectations. The current liability of the debtor is increased by the holding loss incurred, an economic fact which no rational economic agent can ignore and this increased liability is duly reflected in the debtor's balance sheet in the SNA. The debtor may not be unduly disturbed on the grounds that the liability denoted the future interest payable over the remaining life of the bond is also reduced, although the reduction in the present value of this liability must be smaller than the loss.

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<sup>2</sup> As the gain or loss is instantaneous, it must be real at the time it occurs.

The debtor's credit status may be affected by the ensuing fall in net worth, even though there may be no obligation to redeem the bond until it matures.

*An interest rate rise*

13. When the interest rate rises, the price of the bond falls. As a result of the instantaneous reduction in the debtor's liability, it is the debtor, instead of the creditor, whose net worth increases and who is in a position to realize an immediate holding gain, if desired, by repurchasing the bond to extinguish the reduced liability. The debtor may choose not to do so on the grounds that the present value of the liability represented by the future interest payable up to the maturity of the bond is also reduced. The debtor's decision will be influenced by various considerations, such as liquidity. It can be seen from this case that labeling the two positions under comparison the 'debtor' and the 'creditor' approaches is not the ideal description, as the IMF paper also notes. As interest rates rise as well as fall, there can be no presumption *a priori* that the debtor has any more predisposition than the creditor to ignore interest rate changes by pretending that the amount of interest that both parties *expected* to pay when the bond was first issued is irrevocable.

*The numerical example*

14. The IMF paper provides a numerical example of the accounting treatment implied by the two approaches in the table on page 11 of their paper. The debtor approach, which is supported by the IMF, is illustrated in columns (4) and (5) of the table. Notwithstanding the fall in the market rate of interest, the debtor is recorded as continuing to pay the original higher amount of interest. The increase in the debtor's liability due to the holding loss is shown as being progressively cancelled out over the remaining life of the asset as 'holding gains' (reductions in a liability) continuously accrue to the debtor in the future to cancel out the holding loss. In other words, simply by waiting the debtor can count on the holding gains accruing, while the creditor has to passively accept holding losses. In reality, however, capital gains are not to be made so easily, as investors know. A 'gain' that accrues automatically by waiting, and which increases with the time elapsed, is clearly a form of income.

15. This method of accounting does not seem to reflect economic reality. The first problem is that just noted, namely that the 'revaluations' shown in column (5) of the IMF's table as continuously accruing over time are not holding gains to the debtor and holding losses to the creditor. They do not belong in the unfortunately named "revaluation account". Continuous changes in the value of an asset which depend on the passage of time and which can be foreseen by the entire financial market are not holding gains or losses.

16. In para. 15 of the IMF paper it is stated: "in all subsequent periods [i.e., after the interest rate change] the accrual of interest as recorded according to the 1993 SNA is higher than the change in the value of the instrument (which is determined by the interest according to the new market rate), so compensatory holding losses must be entered in the revaluation account to secure consistency with the value recorded in the balance sheet."

This statement is symptomatic of the weakness in the ‘debtor approach’. The need for “*compensatory*” entries in the revaluation account “*to secure consistency*” is a signal that something is wrong. The “revaluation account” is not a reconciliation account in which to record “compensatory” adjustment items.

17. A more serious problem with the debtor approach is that it distorts the whole system of accounts and not just the accumulation accounts. According to column (4) of the IMF’s table, over the years 3 to 10 the creditor is supposed to receive an *income* of 500 per year in the form of interest. At the same time, however, column (3) shows that the value of the creditor’s capital in the form of the bond is steadily being depleted. Part of the ‘income’ of 500 is in fact payable only by means of a steady transfer of capital from the asset that is generating the income. This clearly violates economic and accounting concepts of income. Part of the 500 is neither interest nor income but a repayment of capital by the debtor to the creditor. By overstating interest, the debtor approach overstates the creditor’s primary income, and hence saving, and net lending. This has implications for key economic statistics such as government deficits and lending or borrowing.

18. The accounting treatment under the creditor approach, which is shown columns (6) and (7) of the IMF’s table, is not complete as it stands. The 500 represents coupon interest which is payable, and presumably actually paid, each year. It is a cash flow. Because of the terms of the original contract between the debtor and the creditor, the creditor is obliged to continue making coupon payments of 500 even though from year 3 onwards this exceeds the amount of interest payable. This implies that the debtor must be gradually repaying part of his/her current liability which is indeed confirmed by the gradual decline in the market value of the asset, and the debtor’s balance sheet liability, as the bond approaches maturity.

19. The positive interest in the form of coupon interest is partially cancelled out by the payment of negative interest from the creditor to the debtor as the value of the bond gradually declines as it approaches maturity. To avoid negative interest, the simplest way to portray these economic realities is net one interest flow against the other, bearing in mind that the coupon interest *must* exceed the negative flow in the circumstances. In effect, this means that the payment of coupon interest should be partitioned into two flows, partitioning being a common procedure in the SNA. Only that part of the 500 that constitutes a cash payment of interest (equal to the amount shown in column (6)) should be recorded in the primary income account. The remainder should be recorded in the financial accounts of both parties as a cash repayment of part of the debtor’s liability. There are no holding gains or losses, and therefore no entries in the ‘revaluation’ account in any period after the interest rate change occurs.

20. It is stated in para. 39 of the IMF paper that the creditor approach is “in direct contradiction with the 1993 SNA definition of interest”. For reasons given in para. 7 above, this statement is not correct. On the contrary, the debtor approach advocated by the IMF appears to be in direct contradiction with the SNA’s definition of interest.

*Some concluding comments*

21. The amount of interest payable by the debtor is *not* irrevocably determined by the nature of the contract between the two parties at the time the bond is first issued. *All that is determined irrevocably in the case of a bond is the amount payable by the creditor at the time of issue and the amount payable by the debtor at the time the bond matures, together with the amount of the intervening the coupon interest payments, if any. All the rest is a matter of the economic interpretation of events as they unfold between the two dates in question and the way these events are recorded in the accounts.*

22. At the time the bond is issued, the creditor and debtor have expectations about the total interest that will accrue, period by period, over the life of the asset, but that does not mean that either the total interest, or its accrual, is fixed by the initial contract when the bond is marketable. Those expectations have to be revised as soon as an unexpected change in the rate of interest occurs and no rational economic agent will continue to act on the basis of expectations that have been superceded by events. As Hicks and other economists have remarked, “bygones are bygones” from an economic point of view. A method of accounting based on defunct expectations formed when the bond was issued should not continue to take precedence, as a matter of principle, over a method based on expectations held years later which take account of additional information that was not known at the time the bond was issued. A system of accounts, which chooses to record on this basis divorces itself from economic reality. Regrettably, this includes the SNA’s treatment of interest at present.

23. In *economic* accounting, the first objective must be to determine what is the correct treatment from the point of view of *economic theory*. Having done that, the question then arises of how to implement the treatment. In some cases, it may be necessary to deviate from the economically correct theoretical treatment because of lack of data or possibly for other reasons. However, it is not possible even to begin to discuss optimal ways of approximating to some measure unless the underlying concept has been clearly identified. Nor is it possible to discuss the acceptability of conventions which deliberately depart from the theoretical ideal. This applies in all fields of economic statistics, such as index numbers, and not only in national accounts. Conceptual and theoretical issues must be settled before any discussion of practicalities can begin.