

## Three-Dimensional Accounting System



Double entry system of accounting and the financial statements generated from the books of account maintained on such system have inherent limitations. One of the important limitations of double entry system is the omission of non-financial transactions. In the present scenario there is a need to have a superior system of accounting which will consider not only such non-financial transactions but will also consider the other quantifiable data which will make these financial statements more meaningful. In this article, an effort has been made to discuss a potential new system of accounting, which can be called 3-dimensional system of accounting which will consider all three types of transactions namely; Category I - Transactions having only monetary effect; Category II - Transactions having monetary as well as quantity [3D] effect; Category III - Transactions having only quantity [3D] effect. The article also deals with a number of such areas where the presentation of financial statements will become more reliable and compliant with statutory requirements by applying the new method of accounting.

### Introduction

Presently we follow "Double Entry system of book keeping" for financial accounting. The double entry system is like 2-dimensional system, where we look at the transactions only from monetary angle and apply the accounting rules of Real, Personal and Nominal Accounts. In fact, many transactions actually have three dimensions, except some transactions involving pure cash flows. The 3<sup>rd</sup> dimension of these transactions is some other quantifiable effect which gets omitted from being recorded.

With the help of accounting standards, ERP systems or other measures, in some cases we overcome this limitation while recording transactions and then while presenting financial statements. Can an effort be made to improve the accounting system itself which will automatically generate the necessary data for presenting the same in the financial statements? If



**CA. Umesh Kulkarni**

(The author is a member of the Institute. He can be reached at ukulkarnica@gmail.com)

the basic principles of accounting are suitably amended and the 3<sup>rd</sup> dimension is allowed to be recorded in the books, can the desired result be achieved?

### Limitation of Financial Accounting

Traditionally we have been recording only those accounting transactions which can be measured in monetary terms. We overlook the non-monetary transactions which have other quantifiable angles and we will find a number of important quantifiable transactions which are not reflected in the financial statements merely because they have no monetary value.

Since these transactions are not recorded in the books of account, they do not get reflected in the financial statements generated out of these books of accounts. We have a number of accounting standards which take care of such omissions. But since the transactions are omitted from books of accounts, separate records need to be kept, leading to increased work and also leaving a possibility of omission of some important data.

### What are Other Quantifiable Dimensions?

Stock items have this measurable dimension as 'kgs.', 'litre', 'meter', etc. Investments have number of 'shares' or 'units', and shares or debentures of the company (shown under Share Capital/Secured Loans) have 'number' as the third dimension. Land & Building has 'area' as the third quantifiable dimension. Plant & Machinery can be presented in production capacity or power, Furniture in area or storage capacity, Vehicles in cubic capacity or mileage, etc. Assets measured from this angle will definitely add value for the reader. Land purchased 30 years back and land purchased now will have same benefits but the cost will vary drastically. If a balance sheet shows one acre of land acquired 30 years back at ₹10,000 and another acre of land purchased recently for ₹50,00,000 separately, will definitely give better picture about the market value of the assets.

#### Balance Sheet Assets side (now)

Particulars	Amount (₹)
Land	50,10,000

#### Balance Sheet Assets side (what should appear)

Particulars	Qty.	Amount (₹)
Land	1 Acre	10,000
	1 Acre	50,00,000

*(Here, we are not touching the historical cost concept but just segregating the assets according to its acquisition time, place, etc.)*

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Nominal accounts can also be quantified wherever possible. Number of employees, quantities of materials consumed, number of units for power consumption, area occupied for Rent, Rates, Taxes, etc. are some examples which if shown in Profit and Loss Account will add value.

For example, electricity rates differ for different types of connections or from state to state. With the data of units consumed, one can find out the extent of variation in expenses on account of consumption and on account of rates. You will appreciate that consumption is controllable whereas, rate is not. Necessary data is available in the electricity bill received from the electricity supply company but is not recorded and thus does not become part of books of account.

Take example of earned leave granted to employees. As per the service rules particular number of days leave is credited to employees account on the first day of the year, which he can avail anytime during the year and the un-availed leave is carried forward subject to certain limit. On the balance sheet date such un-availed leave days are not reflected on the liability side. We make a provision for leave encashment but it does not show the number of paid man-days the company is going to lose in future.

This is just a sample list of items. You will find many more items where the 3<sup>rd</sup> quantifiable effect can be recorded.



### Types of Transactions (Monetary As Well As Non-Monetary)

After having understood the 3<sup>rd</sup> dimension for a number of transactions, we can now group various transactions into three categories, namely:

- Category I - Transactions having only monetary effect;
- Category II - Transactions having monetary as well as quantity [3D] effect;
- Category III - Transactions having only quantity [3D] effect.

In the traditional double entry system of book keeping, we record only the transactions in the first category in the books of account.

Transactions in the second category are recorded only to the extent of their monetary effect. We, however, in some cases like stock, do record the third effect as separate costing records.

However, the transactions in the third category, how-so-ever important, are not recorded in the books of account merely because they have no monetary value.

In the proposed new system of accounting (let's call it 3-dimensional accounting system) an effort is made to recognise the transactions in Category II and III. Once recorded in the books of account, it would be possible to reflect the same suitably in the financial statements namely Balance Sheet and Profit and Loss Account.

Implementing 3-dimensional system in phased manner will facilitate its smooth transition over double entry system. Again, the extent to which the 3-dimensional system to be implemented may differ from organisation to organisation.

While proceeding further with the 3-dimensional method of accounting, you will recollect many Category II and III transactions worth recording. We can deal with each one of them as we progress further with this method. Let us quickly see some examples where that third dimension remains unrecorded.

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### Category II Transaction

When we purchase goods, we debit "Purchase Account" (a nominal account) and the same ultimately is shown in the Profit and Loss Account. Actually, when we purchase goods it should be reflected as Stock (Real Account) in the Balance Sheet and should be debited to Profit and Loss Account only when and to the extent consumed.

When we fill petrol in vehicle, we debit "Petrol/Conveyance Account" (nominal account) when there is no expense but an asset (Cash) is replaced by another asset (Petrol, quantifiable in litres). The real expenditure occurs only when we consume that fuel. One may argue that it fits into materiality concept and continue to follow the present accounting treatment. It will be very difficult to actually calculate the consumption of fuel on daily basis and charge to expense account. Effort here is just to point out the real nature of transaction and accounting convenience that is followed while recording the transactions.

When we recharge our prepaid mobile, we debit the Telephone Expenses Account (Nominal Account). Actually we are buying 'talk time' by making payment in monetary terms. The asset (cash) changes to an intangible asset 'talk time' (quantifiable in hours). The real expenditure occurs when we use that 'talk time'. One may again ignore the same from materiality point of view.

But when we debit Purchases Account (nominal account) when we are actually purchasing Stock (real account), it is worth considering seriously. Our present double entry system ignores all the important



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these items neither appear in the Balance Sheet nor get carried forward to next year (as there is no amount), unless we retain some value of such asset as ₹ 1/- or so. Further, question arises as to how to monitor such assets in future and to know when they are later on sold or otherwise disposed off? ”

transactions of transition from raw materials to finished goods and directly records the final transaction of sales. Due to this, we need to value stock at the end of the financial year so that it can be shown in the Balance Sheet assets side by, credited to Trading Account. Showing opening stock and purchases on debit side and closing stock on credit side gives the net effect of materials consumed. What should actually be recorded is the consumption of materials generated out of books of account. When we calculate the closing stock, excess, shortage, pilferage, etc. can accordingly be recorded. Presently, some accounting software allow such type of recording. But the effect in Profit and Loss Account and Balance Sheet is given as per the traditional double entry system.

#### Category III Transaction

When a company issues bonus shares, no accounting entry is passed in the books of the investor as no monetary transaction is involved.

When an employee avails earned leave of one day, the employer actually is put to loss of the output of that employee for that day. But transaction is not recorded in the books of account. What is recorded at the end of the year is a provision for Leave Encashment. When we will start recording these transactions in the books of account, an authentic data will be readily available in the books itself.

In case of demerger of company, both split companies may issue shares to the shareholders without involving any financial implication. This transaction cannot be recorded in the books of account of the investor merely because there is no financial implication. While showing investments in the Balance Sheet, one will have to give special attention to such transactions as the same do not emerge out of books of account. Those who audit the accounts of brokers and sub-brokers or investor having huge investments will appreciate that it becomes very difficult to reconcile the share balances as appearing in the books that with the demat account.

#### How can Category II and Category III Transactions be Recorded in the Books of Account?

Initially, 3-dimensional accounting system can be implemented by inserting some additional fields without disturbing the present structure.

#### Format of Journal Book

Date	Particulars	L.F.	Debit		Credit	
			Qty.	Amount	Qty.	Amount

#### Format of Ledger Account

Dr.				Cr.			
Date	Particulars	JF	Qty.	Amount	Date	Particulars	JF

Consequently, Balance Sheet and Profit & Loss Account also shall have additional quantity column.

Entries under Category I will continue to get recorded in the same manner, with the quantity column remaining blank.

Entries in Category II will be recorded in both quantity as well as Rupees columns.

Entries in Category III will be recorded only in quantity column, leaving the amount column blank. Thereby, these entries will start finding place in accounting, which are omitted so far in double entry book keeping.

The ledger accounts thus get accordingly posted with the amount and quantity wherever necessary. The ledger account will not be closed unless both quantity and amount columns are closed. Thus, the important non-financial items will start finding place in the Balance Sheet and Profit and Loss Account.

Let us take some simple sample transactions and see how the same would be recorded in the new system, posted to the ledger accounts and their reflection in the financial statements.

**Category II Transaction:** ABC Ltd. purchases raw material P (quantity of 100 kgs. @ ₹10/- per Kg), amounting to ₹1,000/- on 29-03-2011 from supplier S. Journal entry on receiving invoice from supplier S on 29-03-2011.

Date	Particulars	LF	Debit		Credit	
			Qty.	Amount	Qty.	Amount
29-03-11	Material P A/c. Dr.		100	1,000		
	To S A/c.					1,000
	(suitable narration)					

Here, instead of debiting Purchases Account, Material P A/c. will be debited and the same will appear in the Balance Sheet and not in the Profit and Loss Account under Purchases A/c.

Here a simple transaction is considered without considering the effect of taxes such as Excise duty and VAT.

**T**he 3-dimensional system, if brought in place, can improve the accounting system to bring it at par with the changing scenario; improve the presentation of the financial statements to give a holistic view to understand the true assets and liabilities whether having monetary value or otherwise; will facilitate better understanding of the accounting records and financial statements not only from financial angle but from various angles. ☺

The major change in the method of accounting will be in relation to material consumption and recording of Sales, Purchases and Consumption for a manufacturer as well as a trader.

**Category III transaction:** XYZ Ltd. issues Bonus shares in the ratio of 1:1. Demat account was credited with 100 shares on 30-03-2011. Investments A/c has opening balance of 100 shares purchased at Rs.200 per share.

Journal entry on receiving intimation of credit of bonus shares to Demat Account on 30-03-2011.

Date	Particulars	LF	Debit		Credit	
			Qty.	Amount	Qty.	Amount
30-03-11	Investments A/c. Dr.		100	0		
	To Profit & Loss A/c.				100	0
	(suitable narration)					

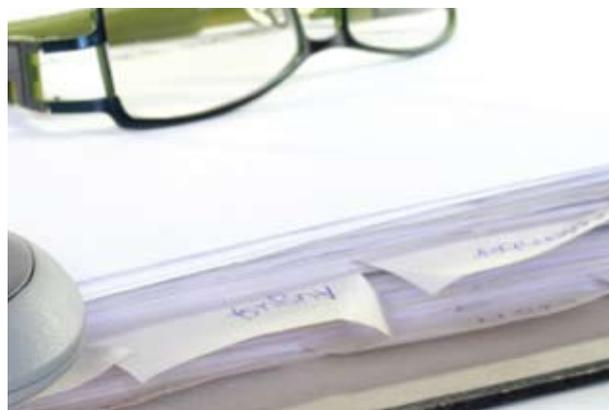
Here the credit effect being in the nature of profit/gain is given to Profit & Loss Account quantity column.

The Investment Account would look as follows.

#### Investment Account

Date	Particulars	JF	No of shares	Amount	Date	Particulars	JF	No of shares	Amount
01-04-10	To Bal b/d.		100	20,000					
30-03-11	To P & L A/c.		100	0					
					31-03-11	By Bal c/d.		200	20,000
			200	20,000				200	20,000

The Profit and Loss Account will have one additional entry on the credit side with zero amount of 100 shares received as bonus shares. Similarly, in the Balance Sheet under Investments, the no. of shares of XYZ company can be shown as 200 in the Qty. column while amount column will continue to show a figure of ₹20,000/-.



#### Balance Sheet Assets side (extract)

	Particulars of Qty.	Qty.	Amount
Shares in XYZ Ltd.	No. of shares	100	20,000
		100	0
Total		200	20,000

#### Profit and Loss Account Credit side (extract)

	Particulars of Qty.	Qty.	Amount
Shares in XYZ Ltd.	No. of shares	100	0

(An asset is generated without paying any cost, hence credited to Profit and Loss Account)

The entry can be made even when no amount is involved but some other quantifiable data is involved. In the present computerisation era maintaining such record should not really be a problem.

Assume a case where an asset gets fully depreciated or stock is written off but we continue to hold the same physically. In the present double entry system these items neither appear in the Balance Sheet nor get carried forward to next year (as there is no amount), unless we retain some value of such asset as Re.1/- or so. Further, question arises as to how to monitor such assets in future and to know when they are later on sold or otherwise disposed off?

#### Benefits of 3-Dimensional Method of Accounting

The 3-dimensional system, if brought into place, can -

- i) improve the accounting system to bring it at par with the changing scenario;
- ii) improve the presentation of the financial statements to give a holistic view to understand the true assets and liabilities whether having monetary value or otherwise;
- iii) will facilitate better understanding of the accounting records and financial statements not only from financial angle but from various angles. ■