**Why do we have to adjust Operating profit for changes in Net working capital (Δ NWC) to develop Operating cash flows for our business?**

1. Imagine a business without ARs (Accounts receivable), APs (Accounts payable), and inventories accounts. Obviously, such a business is only possible if all the sales are cash sales, all the purchases are cash purchases and all the COGS are purchased from the supplier’s market the moment the re-selling is made.

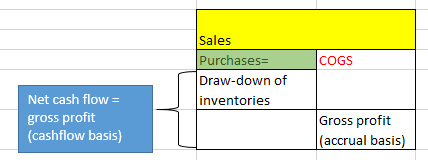
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|  |  |
| Sales |  |
| Purchases= | COGS |
| Gross profit | |

Obviously, in that business accrual-based accounting and the cash-flow-basis accounting for operating outcomes (the gross profit) **will coincide**.

1. **Adjustment for the change in inventories balances (change in inventories during the accounting period)**: Let’s introduce inventories and the Inventory account now. This will have an effect of diverging our cash-flow basis and accrual basis accounting systems. Also, for the sake of simplicity, assume out inventories are homogenous and long-lasting --that is why we express all inventories in value terms, and assume that a part of the inventory value is interchangeable with any other part. And that there are no re--valuations for items recorded under Inventories (as well as for ARs, and APs)

Now above and beyond the normal flow of COGS =purchases we should spend some money (create cash outflow) to build –up an initial inventory. Thus, building such an inventory will require an additional cash-outflow first (therefore, building up an inventory requires cash outflows).

With the inventories in place at the beginning of the year (period), we will be able to draw on their balances to support our sales. Thus, COGS don’t have to be funded fully by simultaneous purchases (simultaneous outflows of cash), and we can use some of the accumulated inventory to sell on. Cash outflows on those inventories were spent in preceding periods, and there is no need now, in the current period, to spend cash on that part of inventories sent to COGS ( Dr. COGS-Cr. Inventories). Therefore, the amount of purchases with cash will be less than the amount of period’s COGS (at the cost of depleting some inventory balances). The resulting gross profit ( which assumes Cash outflows = purchases= COGS in par.1) should therefore be adjusted upwards on the cash-flow basis to reflect the fact that we didn’t spend cash in this period on the COGS funded out of the accumulated inventory balances. Therefore, the depletion of inventories in the process of making period’s sales (the funding of a part of COGS out of inventory balances draw-downs, not out of the new purchases in the current period) conserves cash outflows, makes them less than COGS, and that results in the need to adjust the gross (operating) profit upwards since we want to re-express it on the cashflow basis.



Thus we established that the inventories build-up results in the diversion of cash (extra cash outflows are needed above those to support purchases equaling COGS), on the other hand, inventories’ depletion during the accounting period helps conserve cash outflows and make the “gross profit expressed on cash-flow basis” (i.e. net operating cash-flow) higher than the accrual –basis gross profit.

1. **Let’s introduce APs into the picture.**

Now not only can we make less purchases than COGS during the period by drawing down inventories, we can also postpone paying in cash for those purchases. If we increase the amount tied up in APs during the period (on the net basis), we are doing exactly like that since some accrued and unsettled liabilities result from purchases during the period. That way by increasing the APs during the period we conserve even more cash-outflows (at the cost of outflows later on, after the end of the current period), and our “gross profit on cash-flow basis” grows to be even larger for the period in question (compared to the accrual- based gross profit).

The inverse happens if during the period our APs decrease in net terms. It means some cash outflow has been spent to reduce the net liabilities over and above what was spent to pay for the period’s purchases in full.

Therefore, increases in AP result in increases in cash-flow basis “gross profit” over and above the accrual profit; decreases in APs result in the “cash-flow basis gross profit” being less than on the accrual basis.

1. **Let’s introduce ARs into the picture.**

With this account, the possibility of credit sales makes the “cash flows collected from sales during the period” and the “sales accrued” figures different. Accrual-basis gross profit operates with the sales accruals, but the “cash-flow-basis gross profit” (i.e. the net operating cash flow that we are concerned to develop proceeding from the accrual-basis sales) should operate with the “cashflows actually collected from sales during the period”. Therefore, increases in ARs during the period are indicative of under-collections (in terms of cash) compared to the PLS- posted accrual-based sales figure. Therefore we need to adjust the accrual-based gross profit downwards for the period’s increases in the ARs to develop an estimate of net operating cashflows from the accrual-based gross profit (or any subsequent earnings down the line, like EBIT). On the other hand, a situation can happen in which we not only don’t under-collect, but above full collection for the current period’s sales we also collect previous period’s AR balances. In that instance we have a cash inflow from sales in excess of current period’s accrued sales, thus, the gross profit has to be adjusted upwards from its accrual basis to account for such a reduction in ARs during the period.

In short, increases in ARs during the period result in the “cash-flow-basis gross profit” being less than the accrual-basis equivalent, and decreases in ARs have the opposite effect.

**Therefore, the three standard rules result according to which we can develop operating cash flows out of the accrual-based operating profit:**

* Adjust the accrual-based gross profit upwards for the decrease in inventories, do the reverse for the increase in inventories during the period.
* Adjust the accrual-based gross profit upwards for the increase in APs, do the reverse for the decrease in APs during the period.
* Adjust the accrual-based gross profit downwards for the increase in ARs, do the reverse for the decrease in ARs during the period.

That way we discussed some adjustments needed to convert gross profit developed on the accrual basis into the “cash-basis gross profit” (i.e. the net operating cashflow). In the Business valuation profession, these adjustments are sometimes referred to under the rubric of “investments into the Net working capital (NWC)”. But don’t be deluded, this is not an investment in any sense, rather we are discussing changes needed to convert accrual estimates for the gross (operating) profit to the respective cash-flow equivalent.

We didn’t discuss any non-cash income / non-cash expense related adjustments to the gross profit which are additionally needed for that purpose. Those are much simpler to understand.