UTEFA Learning Session #1 – Supplementary Material

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How do the 3 Financial Statements Link Together?

Note, in real life the process gets more complicated with various exceptions, unusual items and various tax considerations, but at a very simplified level you can think of it as the following:

1. Net Income from the bottom of the Income Statement flows to the top of the Cash Flow Statement
2. Add back non-cash expenses from the Income Statement (e.g. Depreciation, Stock-Based Compensation, etc.) to the Cash Flow from Operations (CFO)
3. Reflect the changes in *operational* Balance Sheet items (e.g. Inventory, Accounts Receivable, Accounts Payable, Prepaid Expenses and anything else that's directly related to the company's operating activities) – if an Asset goes up, cash flow goes down and vice versa; if a Liability goes up, cash flow goes up and vice versa – in class we were calling the combined changes to operational Balance Sheet items "Changes in Operating Working Capital"
4. Reflect Purchases and Sales of Investments and PP&E in Cash Flow from Investing (CFI)
5. Reflect Dividends, Debt issued or repurchased, and Shares issued or repurchased in Cash Flow from Financing (CFF)
6. Calculate the net change in cash at the bottom of the Cash Flow Statement and link this into the cash at the top of the next period's Balance Sheet
7. Update the Balance Sheet to reflect the changes in Cash, Debt, Equity, Investments, PP&E and anything else that came from the Cash Flow Statement – you know you did it right if the Balance Sheet balances at the end!

Solutions to Questions Presented in Class

Assume tax rate = 40%

1. **Depreciation increases by $10**

   Depreciation is a real expense that occurred during the period and has an impact on the company's taxes → it appears on the Income Statement.

   I/S: So, the increase in Depreciation by $10 results in Earnings Before Tax (EBT) to decrease by $10. Assuming 40% tax, Net Income goes down by $6.

   CFS: The Net Income at the top goes down by $6, but you add back Depreciation since it is a non-cash expense. Thus, the CFO goes up by $4, making the Net Change in Cash increase $4.

   B/S: On the Balance Sheet Cash is up $4 and PP&E is down $10 due to Depreciation, so the Asset side is down $6. Retained Earnings on the other side (Liabilities + Shareholders' Equity) is also down by $6 since Net Income fell by $6 making the Balance Sheet Balance!

2. **Accrued Expenses increases by $10**
   Recall that Accrued Expenses are recognized on the Income Statement (real expenses with an impact on taxes) but have not been paid out in cash yet (could correspond to payment being set aside for employee salaries).

   I/S: Operating Income and Earnings Before Tax (EBT) both decrease by $10. Assuming 40% tax, Net Income goes down by $6.

   CFS: The Net Income at the top goes down by $6, and the increase in Accrued Expenses will increase Cash Flow by $10 (Accrued Expenses are a Liability and it increased so our Change in Operating Working Capital also increased). Thus, the CFO goes up by $4, making the Net Change in Cash increase $4.

   B/S: On the Balance Sheet Cash is up $4, so the Asset side is up $4. On the other side, Accrued Expenses is up $10, and Retained Earnings are down $6 (because of the decrease in Net Income) making the Liabilities + Shareholders' Equity side also up $4!

3. **Accrued Expenses then decreases by $10**
   No impact on the Income Statements as the previously recognized expense (see question #2) is now paid out in Cash.

   I/S: No changes.

   CFS: Since Accrued Expenses, a Liability, decreased, the Cash Flow decreases → this is reflected by the Change in Operating Working Capital decreasing by $10. With no other changes on the CFS, the CFO is down $10 and the Net Change in Cash decreases by $10.

   B/S: On the Balance Sheet Cash is down $10, so Assets are down S10. On the other side, Accrued Expenses are down $10 making the Balance Sheet balance.

4. **$100 Write-Down of Assets**
   I/S: Asset Write-Down reduces EBT by $100, making the Net Income decrease by $60.

   CFS: Net Income is down $60, but the Write-Down is a non-cash expense, so it is added back, making CFO increase by $40. With no other changes, Net Change in Cash is an $40 increase.

   B/S: On the Balance Sheet Cash is up $40, but whatever asset we wrote down is down by $100, making the Asset side down by $60. On the other side Retained Earnings are down by $60 due to the decrease in Net Income

5. **$100 Write-Down of Debt**
   This one might be a bit counter-intuitive as a Liability write-down is actually recorded as an addition on the Income Statement. Think of it this way – if you write down your Liabilities you will have less to pay for in the future → gain!

   I/S: EBT is up by $100 making Net Income increase by $60

   CFS: Net Income increases by $60, but you need to subtract $100 since a Liability decreased by $100 (look back to my comments on the Change in Operating Working Capital). Thus, CFO is down by $40 and the Net Change in Cash has decreased by $40.

   B/S: On the Balance Sheet Cash is down $40, making the Asset side down by $40. On the other side, whatever liability we wrote down is down $100 and the Retained Earnings are up by $60 due to the increase in Net Income. Thus, the Liabilities + Shareholders' Equity side is down by $40 making the Balance Sheet balance.

   Intuition: At this point you might be asking if writing down Liabilities boosts Net Income, why don't companies do this all the time? Doesn't it help them out? The answer is that it doesn't help them out in the long-term. Although it may boost their Net Income in the short-term, writing down debt hurts the company's credibility and ability to borrow in the future. The lower credit rating will hurt the company far more than the minimal increase in Net Income helps it.

6. **Company sells some PP&E for $120. On the Balance Sheet it was worth $100**
   I/S: You record a Gain on Sale of $20 ($120-100), boosting the Earnings Before Tax (EBT) by $20. Assuming the 40% tax rate, Net Income is up $12.

   CFS: Net Income is up $12, but you subtract the Gain on Sale of $20 because you want to reclassify it as an Investing Activity. Thus, CFO is down by $8.
   Now, in Cash Flow from Investing, you record the entire amount of the sale proceeds (i.e. $120) so CFI is up $120. As a result, the Net Change in Cash at the bottom of the CFS has increased $112.

   B/S: On the Balance Sheet Cash is up $112, but PP&E is down by $100 since we sold it (note that PP&E goes down by $100 which is the Book Value of the Asset!) making the Asset side up by $12. The other side is also up $12 as the Retained Earnings have increased by $12 due to the increase in Net Income.

7. **Company issues $100 worth of shares to investors.**
   Since issuing shares has no impact on taxes and the shares will be around for years to come there is no changes to the Income Statement.

   <u>I/S:</u> No changes.

   <u>CFS:</u> Cash Flow from Financing is up by $100 as the additional shares issued raise $100, so the Net Change in Cash at the bottom of the CFS is up by $100.

   <u>B/S:</u> On the Balance Sheet Cash is up $100 so the Asset side is up $100. Meanwhile, Shareholders' Equity (Common Stock and Additional Paid-in-Capital) is up $100 making the Balance Sheet balance!

8. **Same scenario as #7 but instead of issuing $100 worth of stock to investors, the company issues $100 worth of stock to employees as Stock-Based Compensation.**
   Since you issued this $100 worth of stock to employees, you need to record it as an additional expense as it is now tax-deductible. Thus, this transaction does occur on the Income Statement.

   <u>I/S:</u> EBT decreases by $100 and Net Income drops by $60 assuming an 40% tax rate.

   <u>CFS:</u> Net Income is down $60, but since Stock-Based Compensation is a non-cash expense you add back $100 making CFO up $40. Since there are no other changes, Net Change in Cash is an $40 increase.

   <u>B/S:</u> On the Balance Sheet Cash is up $40 making the Asset side up $40. On the other side, Common Stock and APIC is up $100 due to the share issuance but Retained Earnings have decreased by $60 due to the decrease in Net Income. As such, the Shareholders' Equity is up $40 as well, making the Balance Sheet balance.