

## Topic 2: Understanding Financial Statements (Copyright © 2024 Joseph W. Trefzger)

In this unit we discuss the Balance Sheet, Income Statement, Statement of Retained Earnings, and Statement of Cash Flows, along with some important financial measures and very basic aspects of income taxation at the U.S. federal level. Our goal is not to create financial statements as accountants do, but rather to understand, from a non-accountant's viewpoint, the general story the statements tell regarding a company's financial strengths and weaknesses. Our sample financial statements generally are less detailed/more concise than would be seen in an accounting course presentation, and we tend to assume that a company's financial situation is reasonably uncomplicated, including the idea that it would have no unusual assets or sources of income.

The topic of corporate financial statements has been controversial in recent years, as some large companies have been accused of using accounting gimmicks to make their financial performance appear better in a given year (or more stable over a series of years) than it actually was – perhaps in an effort to gain better performance-based pay for senior executives. One of the main provisions of the Sarbanes-Oxley law passed in 2002 is that corporate chief executive officers (CEOs) and chief financial officers (CFOs) must certify, in writing, that the published financial statements present accurate representations of their firms' financial situations. Another "SOX" or "Sarbox" provision is that large companies must periodically change the outside accounting firms that they hire to audit their financial statements.

### I. Balance Sheet, or Statement of Financial Position

The Balance Sheet might be thought of as a "snapshot" of a company's financial situation at a particular instant in time. Typically companies provide such a snapshot each year (though large companies almost always produce balance sheets quarterly, as well). As is true of any snapshot, we might draw different conclusions depending on the conditions under which the snapshot is taken. But unless each snapshot is taken under very unusual and differing conditions (*e.g.*, taking one snapshot when inventories are at a seasonal high and then the next one when inventories are at a seasonal low), a series of these balance sheet snapshots should give analysts insights into major events and trends that have affected the company over time.

The balance sheet shows *assets* (tangible and intangible items under the company managers' control) on the "left-hand" side and *claims* (money that was put up by various parties to pay for the assets, such that these parties have claims on the asset values) on the "right-hand" side. Thus the balance sheet shows *what* the company has and *who* paid for it. We call this statement a *balance* sheet because the two major values must, by definition, balance: in an accounting sense (though not necessarily in the sense of true economic values) values of assets (things the firm's managers use in running the business) must equal claims (values the company can deliver, based on those assets' reported values, to the individuals or organizations that provided money).

Money to buy assets is provided by, and thus financial claims are held by, two major groups: lenders [bondholders] (whose claims are called *liabilities*, or *debt*), and owners [stockholders] (whose claims are called *net worth*, or *equity*). There are two major components of equity: *paid-in capital* (amounts the owners contribute directly from their own pockets) and *retained earnings* (profits that could have been paid to the owners as dividends, but instead are retained by the company's managers to pay for additional assets). In a corporate setting paid-in capital might be labeled *common stock* [perhaps based on a stated par value, and there can also be some *paid-in*

*capital in excess of par* – but it is the total of paid-in capital that financial analysts care about, not whether that total is shown as one figure or as separate at-par and excess-of-par amounts].

A simple balance sheet might appear as follows; two or more years might be presented together to show trends, such as whether the company is becoming larger or smaller over time:

XCorp  
Balance Sheet (in thousands of dollars)  
As of December 31

	2023	2022
<u>Assets</u>		
Cash	\$ 20	\$ 20
Marketable Securities	30	25
Accounts Receivable	310	240
Inventory	<u>385</u>	<u>315</u>
Total Current Assets	\$ 745	\$ 600
Plant and Equipment at Cost	\$1,600	\$1,600
Less Accumulated Depreciation	<u>500</u>	<u>470</u>
Net Plant and Equipment	\$1,100	\$1,130
TOTAL ASSETS	<u>\$1,845</u>	<u>\$1,730</u>
 <u>Claims</u>		
Accrued Wages and Taxes	\$ 100	\$ 100
Accounts Payable	175	170
Notes Payable	<u>160</u>	<u>155</u>
Total Current Liabilities	\$ 435	\$ 425
Long Term Debt	\$ 225	\$ 220
Paid-in Capital (Common Stock) at Par Value	\$ 100	\$ 100
Paid-In Capital in Excess of Par	190	190
Retained Earnings	<u>895</u>	<u>795</u>
Total Stockholders' Equity	\$1,185	\$1,085
TOTAL CLAIMS	<u>\$1,845</u>	<u>\$1,730</u>

Some Definitions and Points to Note:

1) Items are arranged on the balance sheet in order of *liquidity*, meaning how quickly an asset (left-hand side) will generate money for the company managers' use or how quickly the holders of claims (right-hand side) must be paid money they are entitled to collect.

2) Cash – the company's checking account balance – is the most liquid asset (the money is available at any time for the company's use in making payments), and therefore is listed first. A potential problem to recognize is that the company earns little or no interest on cash held.

- 3) Marketable Securities are highly liquid short-term investments on which the company can earn interest, but this item is not *quite* as liquid as a cash (checking account) balance, since the company managers must instruct its stock broker or in-house trading desk to sell the marketable securities before the money is actually available for use in making payments. We might think of marketable securities as the company's business-related savings account.
- 4) Accounts receivable are dollar amounts that the company is still owed by its customers on the balance sheet snapshot date, as a result of the company's having sold goods or services on credit.
- 5) Inventory is the collection of items that the company has available for sale to its customers, or that it uses in producing goods to sell. Inventory can consist of raw materials, work in process, and/or finished goods.
- 6) Cash, marketable securities, accounts receivable, and inventory are traditionally classified as *current* assets because we might expect these items to be turned into money (inventory sold, bills from customers collected) in the "short term." While technically we should distinguish the "short term" with reference to the company's *operating cycle* (time it takes to produce goods, sell them, and collect cash), for simplicity/convenience we typically identify "current" or "short term" items as those that will result in the collection or payment of cash within one year.
- 7) On the balance sheet, the company shows its "current" or "short term" asset values as follows: cash as the checking account available balance at the instant when the balance sheet "snapshot" is taken, marketable securities generally at the amount of money they could be sold for (securities can rise or fall in value with changes in the issuer's strength or in the economy), accounts receivable at the amount customers are actually expected to pay (some may not end up paying what they owe), and inventory based on FIFO or LIFO (or sometimes average cost) approaches.
- 8) A company's "long term" assets are not expected to be sold during the operating cycle. These items (for example, "plant and equipment," meaning buildings and machines) are shown at their original purchase prices, minus accumulated "depreciation" amounts that indicate a total loss in value suffered over time through use. The resulting *net* plant and equipment value therefore might be seen initially as an estimate of the price the company could get if it sold its used buildings and machines. However, no one would view this estimate as being a very reliable indicator of true market values. (A company might also have rights in intellectual property, such as copyrights and patents, among its long term assets.)

The major reason why "book" values of long term assets do not equal their expected market values is that depreciation shown on the financial statements is not based on true economic loss in value, which can be all but impossible to measure for big, complicated assets like buildings or specialized equipment without actually selling them. Depreciation shown on a given year's income statement and accumulated depreciation (a summation of prior years' income statement depreciation figures) on a given date's balance sheet are based on an administered formula. That formula can be selected for ease of use (straight-line) or to approximate the way physical items lose economic value (accelerated, showing more decline in value in early years and less decline in later years). [See more about depreciation in the income statement coverage below.]

9) Accrued wages and taxes represent amounts the company owes to parties who have contributed value to the company and its assets by providing labor (they are owed wages) or government services (they are owed taxes), and have not yet been paid as of the instant when the balance sheet “snapshot” is taken. Perhaps the Dec. 31 (or other) date when the balance sheet is constructed is a Tuesday, whereas workers are not paid until Friday. Then finished goods inventory, for example, includes the value of two days of workers’ productivity, and even if the firm were to cease operations it would have to pay the workers for those two days of labor.

10) Accounts payable are amounts the company owes to *its* suppliers as a result of *informal* short term borrowing (buying goods or services on credit, the opposite of accounts *receivable*); the payables value shown on the right hand side of the balance sheet is the total amount owed as of the close of business on the balance sheet date.

11) Notes payable represent a *formal* short term borrowing of money from banks or other lenders, with a specific interest rate to be paid; the notes payable value shown should be the total amount of principal still owed as of the close of business on the balance sheet date.

Our sample balance sheet deviates a bit from standard accounting practice by showing accrued wages and taxes (“accruals”) as the first liability item; it typically is presented after accounts and notes payable. We use this approach for two reasons. First, wage payments to workers could well come due even before payments to suppliers of materials (accounts payable), so accrued wages might truly be the most liquid (needing to be met most quickly) liability.

Second, in computing cash flow measures we sometimes treat notes payable differently from the other current liabilities (accrued wages/taxes and accounts payable). Because notes payable carry an explicit interest cost, they sometimes are viewed in cash flow analysis as being akin to long term debt, and indeed notes payable and long term debt can sometimes be substituted for each other. So here we list notes payable as the last of our current (short term) liability categories,

to keep it next to its long term debt cousin. Then we place accounts payable just above notes payable, since accounts payable does not carry an *explicit* interest cost but often does have an *implicit* interest cost that we can accurately compute (see Topic 14). [Some reference sources state that *debt* is the subset of liabilities that carries an explicit interest cost; in our discussions we treat “debt” and “liabilities” as the same thing – in economic terms, everything has a cost.] Then we put accrued wages/taxes at the top; as noted, it may in fact be the most liquid liability category, and the implicit cost of delaying those payments (*e.g.*, higher wages workers might expect to compensate them for having to wait until the end of a week or month to be paid) would be very difficult to quantify.

12) Long Term Debt is the amount of money the company has borrowed by issuing bonds or borrowing through other long-term channels. The principal does not have to be repaid until at least one year after the balance sheet date (interest must be paid in the meantime, but interest payments constitute an income statement figure, not a balance sheet figure). Some people feel that the amount shown should be greater or less than the principal owed if changes in the company borrowing the money, or in the economy, have caused changes in the value of the bonds since their issue date, but such an approach is not generally followed.

13) Paid-In Capital at Par (possibly listed simply as “common stock” if the company is a corporation) represents part of the money that owners (stockholders if the company is a corporation) have contributed directly for the managers to buy assets with; it is based on an arbitrarily selected “par” value, often \$1 per share.

14) Paid-In Capital in Excess of Par represents the remainder of the money contributed directly by stockholders, with money from their own pockets, for the managers to buy assets. Because any amount shown as par value for common stock is an arbitrary choice with no meaningful financial impact by itself, financial analysts typically would be interested in the total of the two paid-in capital accounts (at par plus in excess of par), rather than in the individual figures: \$100 + \$190 = \$290 in the balance sheet above. (Having a par value for common stock is primarily a historical tradition; today companies often issue common stock with no par value per share.)

15) Retained Earnings represent profits that managers have retained on behalf of the owners. In other words, managers may choose to keep (retain) some or all of the earnings, and buy assets with them, instead of paying dividends to the common stockholders. A couple of points to note:

- The owners (common stockholders if the company is a corporation) expect to earn a financial return on this indirect investment, just as they do on their direct investment of paid-in capital. Therefore, financial analysts often care more about the total of all stockholders’ equity figures than about the separate paid-in capital and retained earnings figures. After all, analysts judge whether a firm is performing well based on the managers’ ability to deliver fair financial returns on the *total* invested by the owners (directly through paid-in capital and indirectly through retained earnings).
- There is no particular connection between cash shown on the balance sheet’s “left hand side” and retained earnings shown on the “right hand side.” (People often seem to expect such a connection to exist.) For example, our balance sheet shows that the company retained \$100 in earnings during 2023 (since the accumulated total for 2023 is \$100 higher than the accumulated total for 2022 – assuming nothing unusual has otherwise affected the retained earnings total). That \$100 may have been used to pay for part of the increase in inventory and accounts receivable that occurred from 2022 to 2023; it would be unusual for the managers to retain earnings and simply park that dollar value in the checking account.

## II. Income Statement and Statement of Retained Earnings

Whereas the Balance Sheet can be compared to a snapshot, the Income Statement might be thought of as a *movie* of a company’s financial dealings over a period of time (typically one year, although large companies usually produce quarterly income statements as well). The income statement shows how much value the company generated by selling its goods or services during the measured time period; how much it spent in producing and distributing those goods or services; and how much was left as *net income*, or *profit*, for the company’s owners. A simple Income Statement (also called Profit and Loss Statement, or “P&L,”) might appear as follows:

XCorp  
Income Statement (in thousands of dollars)  
For the Year Ended December 31, 2023

Sales Revenue (net of allowance for returns)	\$710
Minus: Cash Paid in Producing and Distributing Goods	<u>480</u>
Earnings Before Interest, Taxes, Depreciation & Amortization	\$230
Minus: Depreciation	<u>30</u>
Operating Income, or Earnings Before Interest & Taxes (EBIT)	\$200
Minus: Interest Paid to Lenders	<u>32</u>
Taxable Income, or Earnings Before Taxes (EBT)	\$168
Minus: Federal/State/Income Taxes (25%)	<u>42</u>
Net Income to Owners	<u>\$126</u>

A simple example of the accompanying Statement of Retained Earnings would appear as:

XCorp  
Statement of Retained Earnings (in thousands of dollars)  
For the Year Ended December 31, 2023

Retained Earnings Balance, December 31, 2022	\$795
Plus: 2023 Net Income (potential increase in retained earnings)	126
Minus: 2023 Dividends Paid to Common Stockholders	<u>( 26)</u>
Retained Earnings Balance, December 31, 2023	\$895

Some Definitions and Points to Note:

- 1) Accounting income is measured on an *accrual* basis, meaning that revenue includes the value of goods or services delivered to customers during the time period in question, even if the sales were made on credit and the cash was not to be collected until a later period (for example, credit sales made late in 2023, for which the cash would not be collected until early 2024). We also count the cost of the labor, materials, electricity, *etc.* used during 2023 in producing goods as part of 2023 cost of goods sold, even if the cash payment was not to be made until early in 2024.
  
- 2) In the fairly simple income statement representations we will use we incorporate selling and administrative costs into the cost of goods sold measure, shown above by the descriptive term (perhaps not a great accounting term) cash paid in producing and distributing goods. An unusual/interesting cost of producing goods is *depreciation*. Net income – the degree to which the company owners feel richer at the end of the year – is lower to the extent that long-lived tangible assets have fallen in value with use. So 2023 depreciation generally does not reflect amounts the company committed to spend in 2023. Rather, it is a measure of the loss in value that occurred during 2023 on buildings and equipment, most of which was put into service prior to 2023. Although 2023's income statement measure of depreciation does not involve an outlay of cash in (or shortly after) 2023 – indeed, the money was actually spent when the equipment was purchased, perhaps several years earlier – this amount must be subtracted or the company will seem to be more valuable or profitable than it really is. (The measured decline in the values of intangible assets, such as patents, is called *amortization*.) As noted earlier, while depreciation is shown in recognition of the fact that long-lived assets decline in value over time

(and that spreading their reported costs over the assets' expected useful lives more accurately reflects the company's true cost of being in business), the depreciation figure shown may not be all that close an approximation of the true economic loss in value suffered during the period.

Before passage in December 2017 of the Tax Cuts and Jobs Act, depreciation also played a major role in the computation of a company's income for federal income tax purposes. Prior to 2018, in computing taxable income a firm's managers would "expense" (treat fully in the reporting period when they were purchased) costs of short-lived items like raw materials used in producing goods, or toner used in the company printers, but they had to "depreciate" (spread over multiple years) the reported cost of long-lived items like machines and computers. A \$100,000 piece of equipment with a 10-year expected useful life might have been shown on income statements produced for income tax purposes as having a cost to the company of \$10,000 each year for ten years. But the new law now allows firms generally to also expense costs of long-lived equipment in computing the income on which U.S. federal income tax must be paid. So the company that buys \$100,000 worth of equipment now can claim the entire \$100,000 as a cost in the year when the purchase is made, and since taxable income is essentially revenue minus expenses for that year the remaining income on which tax is to be paid shows as a much smaller amount. Because the purchase of new (or even used) equipment creates a big income tax savings in the year when the purchase is made, lawmakers' intent was to boost the economy by encouraging companies to buy more equipment – and hire people to work with that added equipment.

Company managers still will use depreciation in reporting financial performance to investors (it is perfectly legal and ethical to show different income figures for financial reporting and income tax purposes). A firm with \$350,000 in revenue this year and \$250,000 in other costs shows \$0 pre-tax income after subtraction of the \$100,000 cost of a new machine that will provide benefits for ten years, and then next year will show \$100,000 in income – even though (let's assume) the output of products or services is the same both years. Expensing (now allowed for income tax purposes) speeds up the benefit of saving money on income taxes, while depreciating better reflects the stability of the company's operating performance over a period of years. In our Topic 2 and Topic 3 coverage we use an income statement created for financial reporting purposes, with equipment costs depreciated over time and not expensed in the purchase year. (Buildings, unlike equipment, still must be depreciated, and over many years, for income tax purposes.)

3) Why bother to compute Operating Income (which, in a case with no non-operating income, equals EBIT) when, afterward, we simply subtract additional amounts in determining Taxable Income and Net Income? Operating Income is a purer measure of the company's success in producing its output of goods or services, whereas Taxable Income and Net Income are affected by the company managers' choices in financing asset purchases. Stated differently, two physically identical firms should have identical operating incomes, whereas their taxable and net incomes could differ with "capital structure" choices (how much of its asset financing each company plans to get from debt vs. equity sources – and also could differ based on the two firms' income tax issues that can carry forward from earlier years).

[We might focus on Earnings Before Interest, Taxes, Depreciation & Amortization, or EBITDA, in comparing competing firms whose fixed assets differ in age; a company with older equipment will show lower depreciation expense and thus a higher income measure, but is not necessarily

more efficient overall in producing and distributing goods. A further refinement called Earnings Before Interest, Taxes, Depreciation, Amortization, and Rent, or EBITDAR, might be useful in comparing competing firms on a more common footing when one owns its buildings and equipment while the other rents those items through shorter-term operating leases.] (Accounting rules tend to treat long-term “capital” leases as being equivalent to ownership, since a long-term renter has rights and responsibilities similar to those of an owner. Rules scheduled to go into effect in 2018 will treat short-term and long-term leases of assets similarly.) Then again we might find it interesting that the late, legendary investor Charlie Munger, who led Berkshire Hathaway with Warren Buffett, called EBITDA “bullsh\*\* earnings,”<sup>1</sup> perhaps over concerns that an income measure with so many expenses ignored could be misleading in the wrong hands.

4) Interest paid to lenders is subtracted before the managers compute the company’s income tax for the period. Debt financing therefore is said to have a *tax shelter* effect. However, 2017 income tax law changes reduced potential tax sheltering effects of debt financing to a company. First, the amount of interest that can be deducted generally is limited to 30% of EBITDA (a rule German income tax laws long have followed), although that limit will not tend to be constraining unless an affected company uses debt financing in unusually high proportions. Second, corporate income tax rates now are lower than they used to be, so a deductible expense creates less tax savings than it would have in the past.

5) The computation of corporate income tax is a complex subject that is beyond the scope of this coverage. In finance and accounting courses we typically generalize by treating a company’s income tax obligation as some average percentage of its taxable income. Before 2018 that rate would be somewhere in the 30% to 40% range (there was a graduated rate system, with a higher percentage of tax paid on successively higher levels of income), but the late 2017 income tax law changes instituted a flat rate of 21% at the federal level on all corporate income. Because states and even local areas can also tax corporations’ income, starting in 2018 textbook examples will likely show income tax rates in the 25% to 30% range.

6) Net income is the accrual-based return available to the company’s owners. We might think of it, for now, as an approximation of the amount of cash available for the firm’s owner group. (What ultimately matters to the owners, after all, is how much cash they receive after making the investment and paying any required taxes.) The company’s managers can pay the value that remains for owners to those owners as *dividends*; retain it for the purchase of additional assets (so that each owner subsequently has a proportionate claim on a bigger, stronger company); or pay out some as dividends and retain the rest. Note that the amount of net income retained in 2023 was \$126 net income minus \$26 dividends equals \$100, and that the Statement of Retained Earnings accordingly shows the total of *accumulated* retained earnings (also reflected in the two years’ balance sheets) to have grown from \$795 to \$895, or by \$100, from 2022 to 2023.

Some people view net income, or profit, as an undeserved “extra” that somehow reflects exploitation of customers or the public by the company’s managers and owners. But profit is the only financial return the company’s owners earn for having provided money and accepted risks. Recall that owners are not compensated until all other parties with financial claims have been paid, and then they get to keep the residual that is left. So think of a company that last year collected revenues, paid operating costs, paid interest to lenders, paid income tax to the government, and had \$5 million remaining in net income, or profit. If the managers have gotten \$100 million over time from the owners (through paid-in capital and retained earnings) to pay for



assets, the year's percentage return to the owners is just  $\$5/\$100 = 5\%$  – less than the annual interest rate banks have paid to depositors (who face little risk) in most years since the 1950s.

### III. Statement of Cash Flows

The Balance Sheet and Income Statement do not tell the complete story about a company's finances. For example, we generally think it desirable for assets to exceed liabilities, such that net worth (owners' or stockholders' equity) is positive. And we generally think it desirable for revenue to exceed expenses, such that net income is positive. Yet a firm might have positive net worth on the balance sheet, and positive net income on the income statement, yet be in serious financial trouble because it can not pay, in a timely manner, cash it owes to various parties.

How could this situation occur? Recall that the Income Statement is based on accrual accounting principles. What if high sales were made in 202 (especially late in the year), but a substantial portion of the money was not to be collected from customers for several months, yet the company had to pay cash to *its* suppliers of labor, materials, and services very shortly? This situation could be consistent with a high total asset level on the balance sheet, consisting to some degree of accounts receivable that were not to be collected for many months.

So a company can be profitable (in accrual based terms), and have a positive net worth, but be short of cash. Or a company might have a great deal of cash yet be unprofitable (and/or have a negative net worth); the latter situation could occur if a poorly managed company simply kept borrowing more and more. A company that is very profitable, and growing in size, can also have cash flow problems, resulting from its need to keep spending money on new equipment.

A simple Statement of Cash Flows (based on what accountants call the indirect method) contains three sections: cash flows from *operations* (net income is typically the major component, along with the non-cash depreciation “expense” amount added back as an adjustment), cash flows from *investing* activities (probably a negative amount if the company is buying new equipment), and cash flows from *financing* activities (inflows from the sale of stock or bonds, outflows from the repayment of debt or the payment of dividends). [The payment of interest is conceptually a cash outflow from financing activities, and it is permissible for a cash flow statement to show interest paid as a cash outflow for financing, but for convenience/simplification we normally include it as an indirect outflow from operating activities; that way net income, which is a figure from which interest has been deducted, can be shown as the main source of cash inflows from operations.]

By looking at changes in *working capital* (short term asset and liability) items as part of cash flows from operations, we answer such questions as whether the company collected (paid) more in early 2024 on late 2023 sales (purchases) than it collected (paid) in early 2023 on late 2022 sales (purchases). If those amounts are fairly stable from year to year, then net income plus depreciation provides a good basis for estimating cash flow from operations.

The Statement of Cash Flows grew from, and still largely reflects, an older financial statement dealing with “sources and uses of funds.” Sources of funds (cash) include positive net income (shown net of interest payments), depreciation (treated as a “source” of cash because it was a non-cash amount subtracted in the computation of net income for financial reporting purposes; in other words, we add it back to adjust for its “incorrectly” having been subtracted out), increases in liabilities (selling new bonds, or borrowing money in other ways, generates cash), decreases in assets (selling assets generates cash), and the sale of new shares of stock. Uses of cash include

negative net income, decreases in liabilities (paying back bondholders or other lenders uses up cash), increases in assets (buying assets uses up cash), and the repurchase of shares of stock. By looking at the Statement of Cash Flows, we can see whether a company has a strong cash position simply because it is borrowing money, or a weak cash position despite strong operating performance because it has spent heavily on machines or other investments. But for the most part, in an introductory coverage of financial statement analysis, we usually assume that 1) the company's cash position is not too inconsistent with its operating performance shown on the income statement, and 2) the market values of its assets, liabilities, and equity are not too inconsistent with the book values shown on the balance sheet. Thus we will treat the balance sheet and income statement as providing decent representations of the company's true economic conditions, and will focus on these two statements as decision tools for our further analysis.

#### IV. Some Refinements on Traditional Accounting Measures for Managerial Decision-Making

People who invest in companies, either as bondholders (lenders) or as stockholders (owners), want to receive fair rates of return on their money invested. The returns they get ultimately come in the form of cash paid to them (or, in some cases, cash reinvested on their behalf after earnings are retained). So managers may find it useful to base at least some of their decisions – such as how much money to pay the company's top operating officers – on cash-related measures of company performance, rather than on measures relating to accrual accounting figures alone.

One common accrual accounting-based measure is Net Working Capital (NWC), a dollar figure defined as total current assets minus total current liabilities. (In Topic 3 we will see a related proportional measure, the current ratio, defined as total current assets *divided by* total current liabilities.) The words in this measure's name are meaningful: Net Working Capital is the value of *working* (short term) assets paid for by *capital* (long term) money providers. Our earlier balance sheet shows \$745 in total current assets but only \$435 in total current liabilities, such that  $\$745 - \$435 = \$310$  worth of current assets was paid for with long term money.

Like the related current ratio, Net Working Capital can be examined from two different perspectives. High NWC suggests greater ability to pay bills as they come due (a strong liquidity position), because commitments the company has made as of the balance sheet date will result in its collecting, over the short term, \$310 more than it has to pay out. So even if some of the cash that is expected in the short term does not materialize, the \$310 cushion should allow the managers to still pay what they are obligated to pay in the short term. But high NWC also raises questions on the managers' planning for profitability, because low-earning assets (as current assets tend to be) are financed with high-cost money (as long term debt, and equity, tend to be).

Another financial measure of some interest is Net Operating Profit After Taxes (NOPAT), which is Earnings Before Interest and Taxes reduced by income taxes at the company's average income tax rate:  $(EBIT)(1 - t)$ . We might care about NOPAT primarily because it is the basis for computing the important Economic Value Added (EVA) measure, to be discussed in Topic 3. NOPAT might be thought of as an estimate of the cash that was available to compensate the company's lenders and owners. But it can be criticized as an overly crude estimate of a company's cash situation, because it not only is based on accrual accounting values, but also is not adjusted for depreciation.

We can at least address the latter problem by adding depreciation back to NOPAT to get a measure called Operating Cash Flow (OCF). OCF is a measure of the amount of money the company would *potentially* have had available for its lenders and owners. (While this OCF measure relates to cash flow from operations on the Statement of Cash Flows, it is not the same because in the computation shown below the adjustment for income taxes is just an estimate). But if the firm spent money investing in new long term assets, and in new short term assets net of new accruals and accounts payable, then the amount actually available for the lenders (including notes payable holders) and owners was less than the amount potentially available. Subtracting these net investment amounts from OCF leaves Free Cash Flow, or FCF. That difference is an estimate of what the company managers actually could have paid out, in cash, to investors without diminishing the company's operating and financial strength.

In brief equation form:

$$\begin{aligned} \text{NOPAT} &= \text{EBIT} (1 - t) \\ \text{OCF} &= \text{NOPAT} + \text{Depreciation} \\ \text{FCF} &= \text{OCF} - \text{Net Cash Spent on New Investment in Assets} \end{aligned}$$

[Free Cash Flow, often used as the basis for determining how much money a company should be worth to a buyer in per-share terms or for the entire organization, actually has been defined in various ways; the approach shown here is a common one but not the only one. For example, the approach shown above treats notes payable holders as investors who expect to receive cash payments, while some sources define FCF as OCF – Increase in Gross Fixed Assets – Increase in Net Working Capital, thereby treating notes payable as, in effect, having already been paid. If FCF is positive the company has some ability to grow with money generated internally, rather than with money the managers must obtain from the stock and bond (“capital”) markets.]

## V. Federal Income Taxes in the U.S.

In this course we do not spend much time dealing with income tax questions. But there are two income tax issues that are relevant to many financial decisions.

A. First, the individual investor will pay more for an investment whose financial returns are favorably taxed, holding all else equal. Although individual financial decisions are not the main focus of this course, the tax implications for individual investors can have an impact on how corporations and other businesses raise money from the household sector. It is interesting to look at the way our personal federal income tax in the U.S. is structured.

### Computing the Personal Federal Income Tax:

- Gross Income (including favorably-taxed dividends received as a stockholder, or interest received as a lender unless from tax-exempt sources)
- Adjustments to Income (typically, expenses incurred as a self-employed worker)
- = Adjusted Gross Income (AGI)
- Deductions: Standard, or else itemized:
  - Home mortgage loan interest, some student loan interest
  - Charitable contributions
  - High medical expenses (> 7.5% of AGI)
  - Other taxes (property, state income or possibly sales up to \$10,000)

- = Taxable Income
- x Individual's Average Income Tax Rate (based on income, and on filing status)
- = Preliminary Income Tax Liability
- Credits (child tax credit, earned income credit are common examples)
- = Final Income Tax Liability

When we fill out our annual federal income tax returns, we achieve the intent of this structure by looking at the *tax tables* to find the tax payment appropriate to our taxable income and filing status (*e.g.*, single, married filing jointly). The Internal Revenue Service tries to make the computations easy for us so that we will not make math errors that they will have to correct.

B. Businesses face income tax issues when they obtain money from investors, when they purchase or sell assets, and when they earn income. The basic structure for corporate income tax in the U.S. (U.S. federal income tax is not levied on proprietorships and partnerships; the proprietors/partners receive all the business's income and pay personal income tax on it) is:

- Total Revenue
- Money Paid to Produce and Distribute Goods/Services
- Loss in Value of Buildings (Depreciation)
- = Operating Income
- + Gain or – Loss on Sale of Assets
- Interest Paid to Lenders
- = Taxable Income, or Earnings Before Taxes (EBT)
- x Corporation's Average Income Tax Rate (21% federal + state amount)
- = Final Income Tax Liability

A few points to note:


- 1) Our breakdowns above show income multiplied by the *average* income tax rates. Average rates are useful for historical measurement/analysis purposes. But what matters in making an investment decision is the *marginal* income tax rate – the tax rate that would be paid if an additional dollar of income were to be earned. Before 2018 it was typical for the marginal income tax rate to be higher than the average income tax rate, because higher levels of income were typically taxed at successively higher (“graduated”) rates. So we might think of average rates as helping us to understand where we have been, while marginal rates help us to understand where we are going. Because 2017 federal income tax law changes implemented a new 21% tax rate on all corporate income the average and marginal income tax rates for corporations are largely the same (with taxation at the state level causing small potential differences).
- 2) As stated above, because there usually are state income taxes, and sometimes are even local income taxes, on top of the federal levy the average income tax rate used in textbook/classroom examples after early 2018 is likely to be in the 25 to 30% range.
- 3) If U.S. based Corporation *A* owns stock in U.S. based Corporation *B*, *A* gets favorable income tax treatment on the dividends it receives from *B*. Let's say that *A* receives \$280 in dividends from *B*. The general rule is that 50% (\$140) of the dividends received are tax-free to *A*; the remaining 50% (\$140) is taxed at *A*'s marginal income tax rate. The intent of this provision of the federal income tax law is to prevent income from being heavily taxed three (or more) times. Otherwise, we would face the prospect that *B* would pay income tax on its income, then *A* would

pay tax on the share of *B*'s already-taxed income that *B* pays to *A* as dividends, and then person *P* who owns stock in *A* would have to pay personal income tax on some of the same already-twice-taxed dollars when *A* pays dividends. (There actually *is* triple taxation when *P* owns stock in *A* and *A* owns stock in *B*, but its effect is reduced by the 50% corporate exclusion, and also by the 15% or 20% maximum tax that individuals continue to pay on dividend income under the 2017 tax law changes – however, prior to 2018 the 50% dividend received exclusion was 70%.)

4) Individuals pay income tax when they earn money, but do not receive income tax breaks in a year when they lose money (spend more than they earn). Corporations, however, can receive certain income tax breaks when they lose money. Specifically, if a corporation shows a net loss in the current year, it may get a reduction in income taxes that would otherwise be owed in future profitable years (a loss *carry-forward*). (An exception is when a company loses money every year of its existence, so that there is never a basis for making a refund or reducing later taxes – the government gives a money-losing company back only some of its own tax money, not a share of income taxes collected from others.) [Prior to 2018 a corporation could also seek a refund of some income taxes paid in the two previous years, a loss *carry-back*.]

## V. Some Closing Thoughts

The topic of corporate financial statements has been controversial in recent years, as some large companies have been accused of using accounting gimmicks to make their financial performance appear better in a given year (or more stable over a series of years) than it actually was – perhaps in an effort to gain better performance-based pay for senior executives. One of the main provisions of the Sarbanes-Oxley law (passed in 2002) is that corporate chief executive officers (CEOs) and chief financial officers (CFOs) must certify, in writing, that the published financial statements present accurate representations of their firms' financial situations. Another "SOX" or "Sarbox" provision is that large companies must periodically change the outside accounting firms that they hire to audit their financial statements.

Current formats for the balance sheet and income statement follow 1940s-era federal government (Securities and Exchange Commission, or SEC) requirements on how companies whose common stock can be purchased by investors in the general public ("publicly traded") must disclose financial information. But those formats may be changing substantially at some point in the future. In mid-2007 a number of accounting professional rule-making bodies, representing both the U.S. and international accounting communities, began discussing changes that would cause balance sheets and income statements to appear more like cash flow statements, with separate sections that reflect operating, financing, and investment activities. 

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<sup>1</sup> Schleier, Curt. "Charlie Munger Enhanced Warren Buffett's Portfolio." *Investor's Business Daily*, Week of December 11, 2023, A3.