

# BUS 101 COURSE NOTES

## Week 2 – Introduction to Accounting

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### What Do Accountants Do?

The accounting function involves the recording, classifying, summarizing and analysis of data. Accountants can be broadly categorized as being either external or internal accountants.

External accountants are charged with the responsibility of supplying third-party assurance to financial statement users. They do not formally prepare the financial statements; however, they do ensure that there is a sufficient amount of disclosure relevant to issues that may impact a financial statement user's decision.

Internal accountants are part of management's support staff. They are charged with compiling and interpreting information to aid in managerial decisions relating to all business processes including purchasing and procurement, inventory management, sales and marketing, corporate strategy, and product innovation.

### Types of Accounting

**Managerial accounting:** Measures and reports financial information as well as other types of information that assist managers in fulfilling the goals of the organization.

**Financial accounting:** Focuses on external reporting that is guided by Generally Accepted Accounting Principles (GAAP) and Generally Accepted Auditing Standards (GAAS). Generates or audit financial statements, such as the Balance Sheet, the Income Statement or the Cash Flow Statement, which provide information to shareholders.

**Cost accounting:** Measures and reports financial and other information related to the organization's acquisition or consumption of resources. It provides information for both management accounting and financial accounting.

### Financial Statements

In the Bissan Case, we show you simplified versions of two main Financial Statements: the balance sheet and the income statement.

**Balance Sheet:** This is a document that illustrates a company's financial *position* at one point in time. Think of it as a "snapshot" (photograph) of the account balances on a specific date. It contains 3 sections. The assets are always listed on the left, and they are financed either by liabilities (usually by borrowing) or equity (usually by selling stock / finding investors). When you create your business plan, you will need to determine how your assets will be financed.

- **Assets:** Items of economic value owned by the corporation, especially those which could be converted to cash. Examples are cash, accounts receivable, inventory, office equipment, a building, a vehicle, and other property.
- **Liabilities:** Financial obligations, debts, claims, or potential losses. In simple terms, this usually means something that you owe to someone else, like the portion of a loan you owe to the bank.
- **Equity:** Ownership interest in a corporation usually in the form of stock. Total assets minus total liabilities. It is also called shareholder's equity or net worth.

**Income Statement:** This is a document that summarizes a company's *performance* over time. For a given period, it summarizes the revenues, expenses, and net income. A sample Income Statement, similar to the one in the Bissan Bikes Case, is described below. Usually we indicate numbers that will be subtracted as negative and surround them with brackets ( ).

### Sample Income Statement

<b>Revenue</b>	This is the total amount of money earned by sales to customers.	For example, if we sell 8000 bikes for 600YTL each, our Revenue will be $(8000) \times (600)$ .	4,800,000
<b>Cost of Goods Sold</b>	This is also called COGS. This is the total amount spent on <i>production</i> of goods. These costs include Fixed and Variable <i>production</i> costs, but not Marketing or Administration Costs.	In our example, if it costs 415YTL to produce <i>one</i> bike, then your COGS will be $(415) \times (8000)$ .	(3,320,000)
<b>Gross Margin</b>	This is the Revenue minus the COGS. It is the profit not considering administrative expenses or taxes.	It will be $(4,800,000) - (3,320,000)$ .	1,480,000
<b>Selling and Administrative Expenses</b>	This is money needed to run the company and earn the sales, but it is not directly related to production.	Usually our sales or marketing department tells us how much they spent. In this case they tell give us the figure 896,400YTL.	(896,400)
<b>Income Before Taxes</b>	This is the total profit made before taxes are paid. It is the total of all the revenues minus the total of all the costs. We can use this formula here: $(\text{Gross Margin}) - (\text{Selling and Admin Expenses})$ .	This will be $(1,480,000) - (896,400)$ . Calculating $(\text{Revenue}) - (\text{COGS}) - (\text{Selling and Admin Expenses})$ , will yield the same result.	583,600
<b>Income Tax Expense</b>	This is the amount paid for taxes.	We multiply the before tax income by the tax rate. If our tax rate is 45%, our income tax expense is $(583,600) \times 0.45$ .	(262,620)
<b>Net Income</b>	This is the final profit after taxes are paid.	$(\text{Before Tax Income}) - (\text{Income Tax Expense}) = (583,600) - 262.620$ .	320,980

### Types of Costs

**Direct Costs:** Costs which are related to the production of a good that can be easily traced. Some good examples are direct materials and direct labour because you can easily measure what goes into the finished product.

**Indirect Costs:** Costs that are related to the production of a good but cannot be traced to it in an economically feasible way. An example of an indirect cost is a rent or electricity expense. You know that the money spent on these things was required to produce the finished products, but conducting a study to determine how much electricity went into the product would be expensive and likely not worth the bother. Indirect costs can also be called **overhead**. Indirect costs are often allocated to using a cost allocation method such as “% of labour” or “% of machine hours”.

**Variable Costs:** This is a cost that changes when production changes. For example, if the tires of a bicycle cost a total of \$15, then for every additional bicycle, the total cost of tires will increase by \$15.

**Fixed Costs:** Costs that do not change in total despite changes in production. An example is the cost of building a new factory. Regardless of how many bikes we produce, this cost will not change.

The following matrix summarizes the relationship between fixed, variable, direct, and indirect costing:

Assignment of Costs			
Cost Behavior Pattern	Direct		Indirect
	Variable	<i>Cost Object:</i> Assembled Automobile. <i>Example:</i> Tires used in assembly of automobile.	<i>Cost Object:</i> Assembled Automobile <i>Example:</i> Power costs to produce cars where power usage is metered only to the plant.
		<i>Cost Object:</i> Marketing Department <i>Example:</i> Annual leasing cost of cars used by sales force representatives.	<i>Cost Object:</i> Marketing department <i>Example:</i> Monthly charge by corporate computer centre for marketing's share of corporate computer costs.

*Cost Accounting: A Managerial Emphasis, Horngren et al., 2nd Canadian Edition, 2000.*

## Using “Cost Per Unit” Cautiously

If we assume that to produce 50,000 bikes, total variable costs are \$3 million, and total fixed costs are \$1,000,000 we can describe the unit cost per each bike as being  $(1,000,000 + 3,000,000)/50,000 = \$80$ . **However, what happens when we change the level of production?**

If we double the number of bikes to 100,000 bikes, there will be no change in total fixed costs, however there will be a change in total variable costs.

The unit cost per bike will now be  $(3,000,000 \times 2 + 1,000,000)/100,000 = \$70$ .

From this example, we can see why it is important to base business decisions on total costs, rather than unit costs because the unit costs are often calculated based on an weighted-average of fixed and variable costs.

## Relevant Factors Which Influence Decisions

When making a decision, you must decide which factors are relevant and which are not relevant. When considering costs and revenues, ask yourself this question: will my decision impact this cost (or revenue)? For example, let's say we want to decide whether or not to produce more bikes. If a cost will increase with production, then it is relevant. If a cost does not change when you produce more bikes, that cost does not need to be a factor in your decision.

**Relevant quantitative factors** are outcomes that are measured in numerical terms. Some quantitative factors can be expressed in financial terms, such as the costs of direct materials, direct manufacturing labour, and marketing. Other quantitative factors are non-financial, such as the percentage of on-time flight arrivals for an airline company.

**Relevant qualitative factors** are outcomes that cannot be measured in numerical terms. Employee morale, brand awareness, and reputation are some examples.

In the Bissan case, ask yourself which costs are *relevant* to the decision. Do direct materials costs increase with production? Does total fixed overhead increase with production? In order to decide how much *value* this increase in production (and sales) will add to our bottom line, we only need to consider the costs that will *change* when we *change* production. Why?

## Contribution margin

The contribution margin (CM) is the sales price minus all the variable costs (costs that change when production changes), on a per unit basis. This indicates how much money the sale of *one more unit* will contribute to the bottom line (profit). Why don't we include fixed costs in this calculation? Are they relevant to the decision?

*Contribution margin* is not the same as *gross margin*. Contribution margin is computed after all variable costs have been deducted, whereas gross margin is computed by deducting cost of goods sold from revenues.

## Break-even point

This is the quantity of output at which total revenues equal total costs. At this point, the profit is zero. The company has generated enough revenue to cover their fixed costs.

$$\text{Profit} = \text{Total revenues} - \text{Total variable expenses} - \text{Total fixed expenses}$$

Since revenues and variable expenses change with respect to the number of bikes sold, we can re-write this equation and manipulate it to figure how many bikes need to be sold.

$$\text{Profit} = (\text{Revenue per bike} * \text{number of bikes sold}) - (\text{Variable expenses per bike} * \text{number of bikes sold}) - \text{Total fixed expenses}$$

$$\text{Profit} = (\text{bikes sold}) * (\text{Rev. per bike} - \text{Var. exp. per bike}) - \text{Total Fixed Exp.}$$

Since (Rev. per bike – Var. Exp. per bike) is contribution margin (CM), we can write:

$$\text{Profit} = (\text{bikes sold}) * (\text{Contribution Margin}) - \text{Total Fixed Expenses}$$

The Break Even point is the *number of bikes sold* that will make the Profit = 0. So:

$$0 = \text{bikes sold} * \text{CM} - \text{Total fixed expenses}$$

$$\text{Total fixed expenses} = \text{bikes sold} * \text{CM}$$

$$\text{Total fixed expenses} / \text{CM} = \textbf{bikes sold}$$

Therefore, the break-even point is the level of output at which the contribution margin exactly covers the total fixed costs. What is the reasoning behind this? Remember that your contribution margin tells you how much profit is “contributed” by producing each bike. However, if your revenues exceed your variable expenses, does this mean your company is profitable? Not necessarily. Because the contribution margin does not take into account fixed expenses, in order to “break-even” you must also ensure that you are making enough profit per bike to cover these fixed costs.

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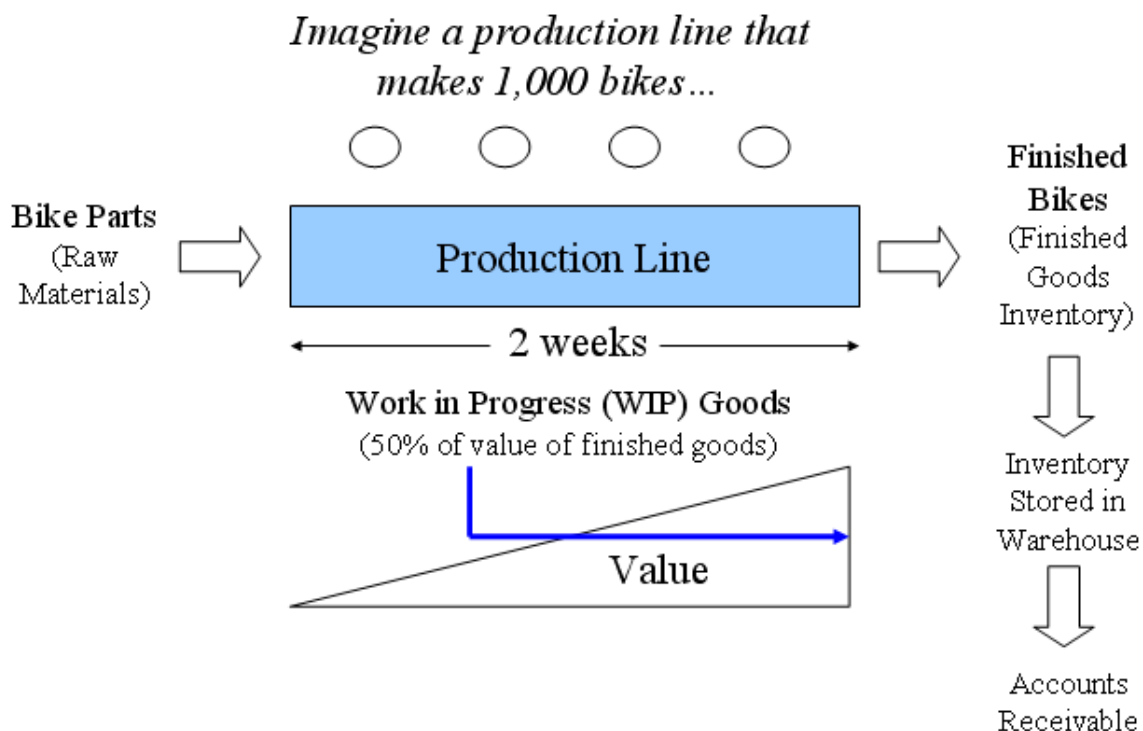
## Week 3 – Further Analysis of Bissan Bikes Case

### Cost of Inventory

Bissan Bikes is trying to decide whether or not to increase production. When production increases, the amount of money spent on things like raw materials, direct labour, and variable overhead also increases. By *how much* will these expenses increase, and does the company have enough resources (cash) to complete this project (is it even feasible)? This extra cash will be “tied up” in inventory. This means that the company will not be able to spend it on anything else.

### Stages of production

In order to calculate how much cash is needed to increase production, we need to break production down into stages. A different amount of cash will be tied up at each stage.



**Raw Materials Inventory:** Also called Direct Materials Inventory, we will need to spend money purchasing materials used in production, such as metal for the frame, components like brakes from Shimano and accessories such as reflectors.

**Work in Progress Goods:** These are goods partially worked on but not yet fully completed. The value of these is one half of all variable costs for the number of units at this stage.

**Finished Goods Inventory:** Goods fully completed but not yet sold. These goods are at the factory awaiting shipment to a warehouse.

**Inventory Stored in the Warehouse:** These goods have been shipped to a storage location but not yet sold.

**Accounts receivable:** Amounts owing by customers, usually arising from the sale of goods or services. In the case of Bissan, accounts receivable would have risen because the goods had been delivered and so revenue would have been recognized, but the customer (MikRos) still owed cash. This money that we are waiting to receive from MikRos is still a “hole” in our cash flow.

To determine the total additional investment required to produce the bikes, add up the amount of money invested in each of the production stages. Now look at the Balance Sheet to determine if the company has enough resources to take on this project. If there is not enough cash, Bissan will need to borrow money.

## **Taking on Debt (Borrowing Money)**

### **Interest**

When you borrow money, over time you will also be required to pay interest on this money. This is the price of borrowing money. Usually interest is expressed as a percentage, or rate, such as 8%. For example, if you borrow 1000 YTL at an interest rate of 8%, you will owe 1000 YTL plus  $1000 \times 0.08 = 80$  YTL worth of interest. This money that we need to *spend* in order to *borrow* money is often referred to as the cost of funds.

**Debt/Equity ratio** = (total debt/total equity). This ratio gives an indication of the capital structure of a firm. It tells us relatively how much its assets were derived from debt (liabilities) as compared to equity financing. On the balance sheet, [assets = liabilities + equity]. There is no “optimal” ratio here. What constitutes a “normal” debt/equity ratio is dependent on the industry and financial climate of the firm. Intuition suggests that the less debt the better so the best debt/equity ratio is zero.

But not so! A firm with a very low debt/equity ratio (near zero) may be very stable with few creditors (lenders) to worry about paying back, but it may be missing opportunities by refusing to take on debt. You can often earn more by borrowing and investing than by not borrowing. For example, if a company is earning a 14% return on equity, and can borrow at 8%, then borrowing can allow the firm to grow and earn more income. This is called using debt as “leverage”. You will learn more about this in MAN 213 and MAN 321.

### **Bank Loans and Restrictions**

It is common for banks to use standard ratios, such as the Debt/Equity ratio, to place restrictions on loans extended to firms. For example, a bank may place a restriction that prevents the firm’s Debt/Equity ratio to fall below 0.5. The bank does this because it wants to make sure that the company has sufficient assets to repay the loan. Typically, a violation of such a restriction is illegal and the bank will require the company to pay back the entire loan right away.

## **Opportunity Cost**

The contribution to income that is sacrificed because you are not using a limited resource such as cash in its best alternative use. Ask yourself this question: if you didn’t use the cash to invest in this project, what else could you do with it? Could you have invested in a different project? Could you have earned a higher rate of return on a different investment?

## **Cannibalization**

The risk of losing sales of an existing product because a new product is entering the same market. For example, if you sell regular toothpaste and then decide to introduce consumers to whitening toothpaste, your new product will probably hurt the sales of your older product.

## Summary

After completing this Case Study you should have developed an understanding of the following concepts:

- Some costs are variable and vary with production while others are fixed and remain constant regardless of production levels.
- Some costs are relevant and some are not relevant to a “produce or don’t produce” situation.
- Inventory is not free. Increasing production ties up cash in inventory and accounts receivable, and you need to determine whether you can afford to do this.
- Borrowing money is not free. Along with debt comes interest expense.
- By investing cash in a new project, you are sacrificing the income you could be earning if you invest that money in a more lucrative (profitable) investment. This missed opportunity is called “Opportunity Cost.”
- If a company does not have enough cash or available financing to produce the initial cash needed for a project, the project will not go forward.
- A company has resource limitations such as production capacity. We cannot produce an infinite number of products.
- In addition to looking at revenues and expenses, strategic and qualitative factors must be considered when making any decision. Although financial analysis can add to our understanding of a scenario, a decision cannot be made blindly by the numbers. Are the numbers telling use everything, or leaving something out? Ultimately you need to use your common sense and reasoning.

## English – Turkish Glossary

accounts payable: ticari borçlar  
accounts receivable: ticari alacaklar  
administrative expenses: idari giderler  
annual volume: yıllık hacim  
assets: varlıklar, aktifler  
average unit cost: ortalama birim maliyet  
balance sheet: bilanço  
bank indebtedness: banka borcu  
capital: sermaye  
Capital Markets Board (CMB): Sermaye Piyasası Kurulu (SPK)  
cash flow statement: nakit akışı tablosu  
cost: maliyet  
cost of goods sold: satılan malın maliyeti  
current assets: cari aktifler, dönen varlıklar  
current liabilities: kısa vadeli borçlar  
debt: borç  
debt ratio: borç oranları  
dividend: kar payı  
equity: özvarlık/özsermaye-öz kaynak  
expense: gider  
finished goods: mamul mal  
gross margin: brüt kar  
income before tax: vergi öncesi kar  
income statement: gelir tablosu  
income tax: gelir vergisi  
independent accountant: serbest muhasebeci  
independent account financial advisor: serbest muhasebeci mali müşavir (SMMM)  
leasing: finansal kiralama  
liabilities: borçlar  
net income: net kar  
net sales: net satışlar  
net worth: özsermaye  
overhead cost: sabit maliyetler  
prepaid expenses: peşin ödenen giderler  
principal: ana para  
property plant and equipment: maddi duran varlık  
raw materials: hammadde  
retained earnings: dağıtılmamış karlar  
return on equity: özsermaye karlılık oranı  
revenue: gelir  
sales: satışlar  
stockholders or shareholders or owner's equity: özsermaye  
unit cost: birim maliyet  
unit price: birim fiyat  
work-in progress: yarı mamul

**Resource:** Akman, N. & Muğan, Can. (2005). *Principles of Financial Accounting*. Ankara: Gazi Kitabevi