

# CHAPTER 4: FINANCIAL LEVERAGE.

## Introduction.

Here, what we are about to study is the 2 decision that we mentioned in the first chapter, the **financing decision**. Basically, we want to know which is the best structure in order to finance a project.

During this chapter we will have to consider the different concepts we studied in the previous years, like **weight average, cost of debt, cost of equity...**

## Factors to consider when studying the Capital Structure.

### 1. Financial Flexibility:

How rapidly you can adapt to the changes in the environment. This capability of adaptation will determine the **limit of debt** that the company could be getting.

Usually this capability of adaptation is related with the amount of cash that the company generates.

### 2. Credit Ratings:

The Credit Ratings is the “mark” that is given by those rating companies like Standard & Poor’s and others. These companies were also one of the reasons for the gravity of the 2008 crisis.

### 3. Tax Deductibility:

In a company, paying fewer taxes is always a good thing to do. Then, when higher the tax rate is, the more **interesting and attractive** for the company to finance through debt. But we got to be careful, sometimes we must pay dividends.

### 4. People look at the Business Risk.

**People look at the Business Risk** because it should be what is representative of the company, of how the company is going. Usually this risk should be similar between the companies of the same sector, so it is easy to compare it, as well as comparing it with companies which are in other sectors.

### 5. Flotation Cost.

As you know, this **cost determines the amount of credit you are really going to receive**. If this cost is high, it might not be rentable for the company to use debt, as it will have to pay back a lot compared with what it receives.

### 6. Impact that it will have in our image.

Maybe increasing the Debt of the Company could be viewed as the company need for credit to survive, not to grow. Then, it could have a negative impact, remember that the financial markets usually are driven by sentiment or speculation, these things happen.

Pecking Order Theory.

In a company you can finance yourself using **three different ways**. These ways are:

- A. Net Income:** Instead of distributing the Net Income through dividends, the company keeps it as **Retain Earnings**, which is could be used for financing necessities.
- B. Debt:** Ask for a credit, we know all that could happen, well as I am really putting this at the beginning of the notes, you actually do not know the consequences, but you will know when you read the rest of the pages.
- C. Increase Common Stock:** Which is just increasing the number of shares of the company, affecting the distribution of the Net Income by share.

There would not be any problem if the market behaved as a perfect world, which we explained in the chapter 1. But unfortunately, we have a market ruled by:

- **Agency theory:** Where there is an agent and a principal (CEO and the shareholders) whose interest and risk aversion do not match.
- **Information Asymmetry:** The information is not equal to all the players in a company. **The shareholders do not know everything that the CEO knows.** This “advantage” that the CEO knows, could be wiped out if he uses debt to finance, so he might choose for an **Increase in the Common Stock if he has no Returned Earnings.**

Then, as this situation happens, the financial markets usually conclude that if a company is raising the Common Stock is because it needs money to finance and the Net Income is not good enough to do that, having an effect in the shares of the company, which will fall in price.

Also, a company will not increase the common stocks if the price is undervalued, as it will mean that they are losing money when creating the stocks, they might use the other two options. **So, when they increase the number of common stocks, usually means that the price is overvalued, so the price should fall.**

Concepts.Earnings per Share (EPS).

This is one of the bases of this chapter. The earning per share only represents the amount of Net Income that would be attributed to each share. It does not take into account the probability of occurrence of each situation.

Formula.

$$EPS = \frac{\text{Net Income}}{\text{Number of Shares}}$$

Conclusion.

We get “x €” for each of the different shares when we distribute the Net Income generated “x situation”. We can compare it with the other capital structure situation to know profitability.

Joke:

If you decide that you’re indecisive, isn’t that being decisive?

**Expected Earnings per Share (\*EPS).**

The Expected Earning per Share is Expected as takes into account the **% of probability** of occurrence of each situation, as well as the EPS of each situation. It could be defined as the median of all three situation, creating one which could end up being the closest to the reality. This indicator is the one who is going to tell us the **rentability** of the financial structure which is being studied for the company.

**Formula.**

$$eEPS = (EPS * \%) + (EPS * \%) + (EPS * \%) \dots$$

**Note:** The % is the percentage of occurrence. And I did not stop as they might be more than three situations, or less, but always more than one.

**Conclusion.**

We are expected to get “x €” for the company taking into account all the different situations, EBITs and % of occurrence.

We should compare it with the situation that has different capital structure. When we compare it, we will see which of the situations has a **higher rentability**. We compare this metric over the previous one as this one is more exact.

**Percentage of change between EPS.**

The percentage of change is in order to have a first look at the volatility of the different situations that could occur in a company. This indicator is the one who is going to tell us the **risk** of the financial structure which is being studied for the company.

**Formula.**

$$\% \text{ of change between EPS} = \frac{(EPSx - EPS2)}{EPS2}$$

**Note:** I putted EPS2 to make it clear that we always compare it with the EPS which is in the middle.

**Conclusion.**

This metric helps us explain the **volatility of the different situations of the company**, as well as allowing us to compare it with the other capital structure situation in order to know which one has a higher risk.

**Standard Deviation (sd).**

This is the indicator which represents the **volatility** at its best. Because of that, it gives us the best representation of the **risk** in which the company is operating.

**Formula.**

$$\sqrt{(EPSx - eEPS)^2 * \%x + (EPSy - eEPS)^2 * \%y + (EPSz - eEPS)^2 * \%z}$$

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**Note:** The EPS with a letter is to indicate that we have to take each and every one of them. The % is just the percentage of occurrence of the different situations, which has to be the same than the EPS which is being studied.

**Conclusion.**

The standard deviation that we get is "x". The number itself makes no sense. This is why we need to compare it with the other capital structure. The **higher** the number is, the **higher** the **risk** of the company is going to be, as the **volatility** of the company is higher.

**Other Learnings.****Taxes**

Taxes do Not affect at all the situation of the company in terms of capital structure. The risk is going to be the same.

However, the profitability is going to be affected, as the taxes reduce the Net Income generated by the company.

**Debt.**

The first thing about debt is that it allows the company to save on taxes. It does so by reducing the EBT, which is the amount from where the % of debt is going to get applied and subtracted the amount of taxes to be paid by the company.

The Debt it does affect the profitability as well as the risk of the company, creating another type of risk that sums the one already generated by the activity of the company.

**Types of risks.****Business Risk.**

Business Risk is all that risk generated from the activity exclusively of the company, without any external financing loan.

It is all that happens before the EBIT. The higher the volatility of the different EBITs are, the higher the business risk is going to be.

**Financial Risk.**

This type of risk comes from debt. This risk adds to the business risk in order to generate the overall risk of the company which we will use to decide whether is good to finance the company through debt or equity.

The financial risk is generated through the obligation from the company to pay interest as well as the loan, so this risk is what happens after the EBIT and before the EBT.

**Note:** In the creditors view, this risk is called **credit risk**.

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**Break-Even-Point of EBIT.**

The Break-Even-Point of EBIT is the amount of EBIT when the financial structure does not matter in a constant situation, with “*ceteris paribus*” and a constant Cost of Debt in all the different possibilities.

**Formulas.**

$$EBIT = ROA * ASSETS$$

$$\frac{(EBIT_x - Interest_x) * (1 - taxes)}{Number\ of\ Shares_x} = \frac{(EBIT_y - Interest_y) * (1 - taxes)}{Number\ of\ Shares_y}$$

**Note:** There is an “x” and a “y” because there is a different between the values that are used in one side of the Equation and the other. Both of the Equations should lead to the same result.

**Conclusions.****Negative Financial Leverage.**

This happens when the real result of the EBIT is lower than the Break-Even-Point. When this happens, the EBIT generated by the company is not enough to surpass the cost of debt. Because of that, it is preferable to use Equity to finance, which does not have that obligatory cost of debt.

**Positive Financial Leverage.**

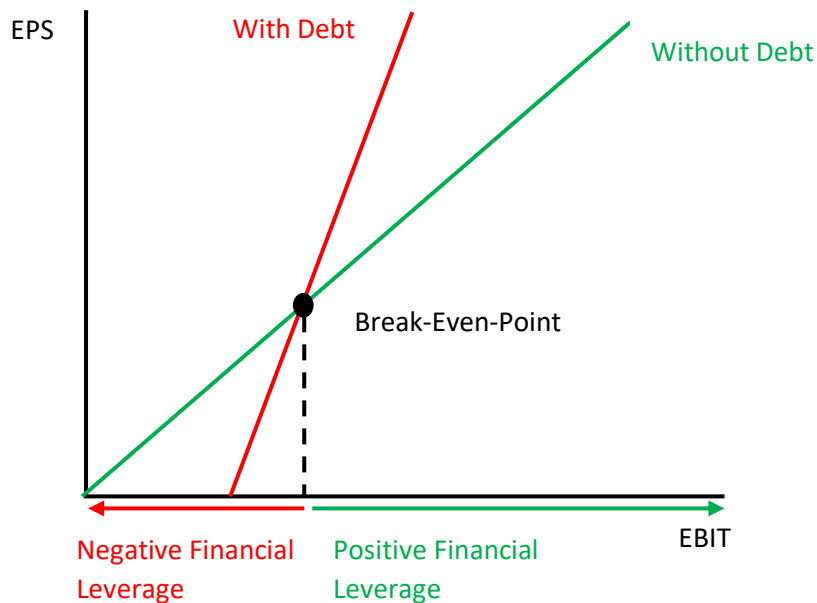
This happens when the real result of the EBIT is higher than the Break-Even-Point. When this happens, the EBIT generated that term by the company is enough to surpass the cost of debt.

The margin that the company generates from the cost of debt and the profitability of its activity goes straight to the shareholders pocket, allowing the company to not use the money of the shareholders and probably reaching the objective of Return in equity.

**Jokes:**

- Have you heard about the giraffe with a big ass?
- No.
- It is a **tall tail**.
  
- What do you call an Asian man that always has correct change?
- Exact Lee
  
- What is a wintertime contract?
- A Santa Clause
  
- Why did the smartphone need glasses?
- He lost all its contacts.
  
- Why isn't a group of squid called a squad?

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Example.

	Kd	Return on Assets
Negative Financial Leverage	5 %	3 %
Positive Financial Leverage	5 %	9 %

As you can see, the difference in the return on assets, that margin that it gets from the Positive Financial Leverage, it is all for the company, which will end up being for the shareholders.

ROE.

The assumptions that we get from the EPS can be also obtain through the ROE, giving credibility to all the conclusions we derive from the EPS. In the end, they are the same, but one is in % and the other one is the amount that it would be divided between all the shares of the company

Formula.

$$ROE = \frac{\text{Net Income}}{\text{Equity}}$$

Situations when the Cost of Debt changes with the risk.Cost of Equity (ke) vs Cost of Debt (kd).

The Cost of Equity **always** is going to be the highest. This is because in each situation both are more sensible to the risk, and they might change in the Weight they represent over the financial structure.

However, the one's who are probably going to always receive back their money, or which have preference over that are the **creditors**, while the shareholders will receive the leftovers.

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**Beta.**

An increase in Debt will result in an **increase** in the Beta.

This is obvious as the volatility increases, which is what the Beta represents in Financial Management.

**Valuation.**

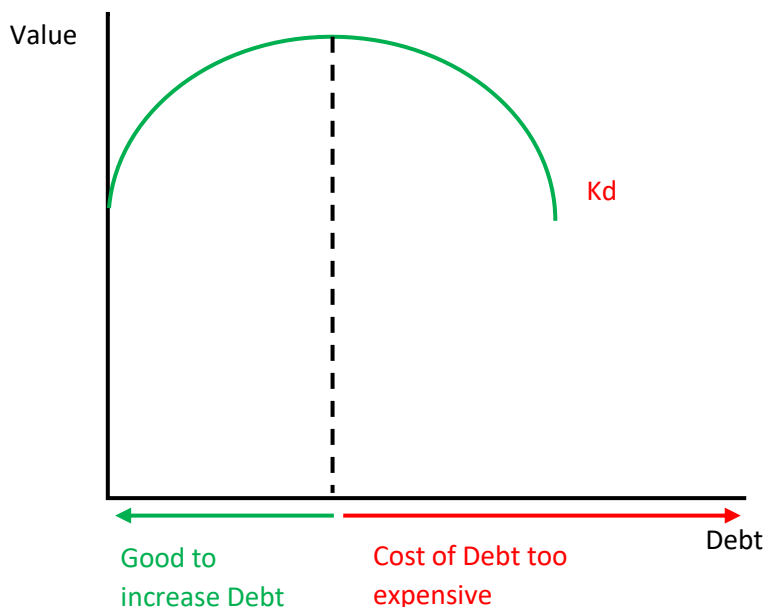
As the increase in costs is not linear and the number of shares also changes the perfect financial structure that gives the highest valuation might be obtained with a specific amount of Debt. To see what I mean just do the **Big Case**.

**Substitution Effect.**

In this case, the company does substitute some of the Equity for Debt. It does so through the purchase of shares using Debt. By doing so the number of shares reduces and the partition of the valuation might be done with fewer shares, which means that the value for each share could be higher.

We got to take into account that Debt does not affect the FCF, so the only thing that will affect the value will be the **Cost of Capital**. If this cost brings the value higher, we should finance through debt. But while financial risk and the overall risk increases, so will the cost of capital, making it not rentable at some point.

**Note:** This valuation would be the same for the overall sum of the Debt + Equity as well as the valuation per share.

**Jokes:**

<https://youtu.be/mj1RAJ4JHzM> - Here you can see some of the jokes that I wrote.

- Why was the broom late to work?
- It over-swept