



Impact of the Cost of Debt on LBO Profitability
End of Master Project

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Executive Summary

This academic paper will be developing the concept of what a leverage buyout is, and how does the leveraging affect the profitability of these type of acquisitions. Throughout the research paper we will be explaining in depth concepts that will aid the readers to comprehend what happens during a LBO acquisition and how could it impact the outcome of it. Not just analyzing the outcome of the operation, but what are its determinants and how could it be optimize by maximizing the returns at the end of the holding period.

All of the theoretical concepts mentioned and explained in the first chapter will be put into practice in order to analyze a model aimed at giving a better understanding on the proposed research question. Trying to produce an accurate leveraged buyout model we have used as historical data the financial statements of telepizza. This has allowed us to recreate a more realistic model. We will also be able to see, if the private-to-public acquisition goes through, how accurate our model was and the potential returns for said deal.

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List of Abbreviations and Technical Terms

PE: Private Equity
LBO: Leveraged Buyout
M&A: Mergers and Acquisitions
PtP: Public-to-Private
Newco: New Company
WACC: Weighted Average Cost of Capital
DCF: Discounted Free Cashflows
APV: Adjusted Present Value
TV: Terminal Value
EV: Enterprise Value
NFD: Net Financial Debt

Chapter 1. Introduction

1.1. Objective

Leveraged buyouts (LBO) have experienced a significant growth and nowadays it is very common that acquirers use the value of the acquired company's assets as the guarantee to borrow the money for the purchase.

In this paper, we will be reviewing how these acquisitions are implemented and the potential benefits and dangers of the use.

The main objective of this paper is to provide a thorough study, both theoretical based on a review of the literature and practical by developing our own LBO acquisition model, so that the reader can obtain a broader view on the topic.

To achieve the main goal, we will try to go through all the key phases and areas that are tackled in a real LBO. The different goals will be based on identifying the key elements that take place in an LBO such as debt, capital structure, participants... to find out the best and most optimal capital structure for an LBO acquisition, how are the returns divided between all those that helped the acquirer raise money depending on their capital contributions, give academic evidence of the different valuation methodologies that might be applied to an acquisition such as an LBO (discounted cashflows, adjusted present value, multiples...).

We will develop our own LBO model using as example the Telepizza acquisition that has recently taking place in the Spanish stock market.

1.2. Structure

This paper is structured in five chapters.

The first chapter includes the objective, structure and methodology of the essay.

The second chapter includes the theoretical framework for LBOs. In the second chapter we will be reviewing the most important academic papers. The key concepts, structures and definitions will be developed so the reader can achieve a better understanding of the LBO acquisition structures.

The third chapter includes the LBO model that we have developed. It will be divided into two sections. First, we will guide the readers through a usual LBO model development. Secondly, we will explain how we have developed the model for this end of master project, including both the operating assumptions and the financial ones. We believe that our example will clearly show the benefits of financial leverage should a minimum threshold of operating profitability been reached. The last section of this chapter will be to talk about the results and develop our conclusions.

The fourth chapter includes our conclusions. The results obtained in the models will be shown and analysed.

Chapter 2. The theoretical framework

2.1 Introduction

Leveraged buyouts are acquisitions in which a company “is acquired by a specialized investment firm using a relatively small portion of equity and a relatively large portion of outside debt financing” (Kaplan & Strömberg, 2009, p. 121). The main purpose of leveraged buyouts and the reason why it is frequently used in mergers and acquisitions (M&A) is because it gives companies the opportunity to make larger acquisitions without having to employ too much own capital in them. Most of the LBOs target private companies with the aim of taking control, making them larger and more profitable and, finally, selling their participation on a period of 7-10 years at a higher price. It is usual that in an LBO transaction type the equity used is 20% approximately and the remaining 80% is raised as debt.

Leveraged buyouts have become increasingly popular. Firstly, acquirers are able to provide higher returns to their investors by reducing the amount of equity capital invested. As we have already mentioned, the equity used in a LBO usually represents a small fraction of the total capital invested. Secondly, the financing banks usually charge interests above the usual interests improving its own returns. Consequently, this type of transaction is seen as a win-win situation both for companies using LBO's and for the financing institutions.

It is true that LBOs is a type of transaction that can be used to purchase any company. However, due to the nature of the transaction, the most common type of LBOs are the so-called public-to-private (PtP) transactions. PtP were mostly acquisitions that used a large amount of debt by employees of a company in order to gain control over it and acquire it. PtP are still an important type of transaction that employs the use of LBOs, recently we have seen the acquisition of Telepizza by KKR, a PtP done through an LBO. Besides PtP, LBOs are widely used in the private equity sector. Private Equities like to use LBO, because as they increase the operational characteristics of a company, having acquired it with a portion of leverage will increase their IRR on equity at the end of the holding period.

According to the acquirers' nature, we can classify LBOs as follows:

1. Management buyout (MBO): The acquirers are the company's managers that decide to purchase a controlling share of the company where they work.
2. Management buy-in (MBI): Managers from another company decide to buy a controlling stake of the targeted enterprise. Usually, the managers of the acquired company remain within the company. The idea behind an MBI is to change the direction of a company which might be undervalued due to internal or external problems, but not due to the direction or executive level of it.
3. Buy-in management buyout (BIMBO): This form of LBO is a mixture between a MBO and a MBI. A BIMBO is when a part of the existing managers inside a company together with a group of external managers will take control of the majority of a company. The existing managers will contribute to the buyout stake and the outside managers will provide the buy-in stake.
4. Leverage employee buyout (LEBO): As the name indicates, a LEBO is when the employees of a firm purchase a majority stake inside its own company. This might also sometimes be referred to as Employee buyout (EBO). It is done for many reasons like to cut costs, by reducing staff numbers mainly. Some of the ways in which it is done include using an employee stock ownership plan and when it reaches majority it is officially achieved.
5. Institutional buyout (IBO): The IBO is the most common type. It is usually referred to as LBO. In this case the acquirers are a group of investors and it usually includes a private equity fund as one or the sole acquirer.

2.2 The origins and history of LBOs

The first LBO acquisition is attributed to McLean Industries, when they decided to acquire Pan-Atlantic Steamship Company in January 1955 and Waterman Steamship Corporation in May 1955. The figures of the acquisition of Pan-Atlantic steamship Company are not totally known. However, in the case of Waterman Steamship Corporation, McLean Industries were able to raise \$42 million and they merely used \$7 million worth of equity capital. This structure of equity and debt implies using around 14% of the former and 86% of the latter.

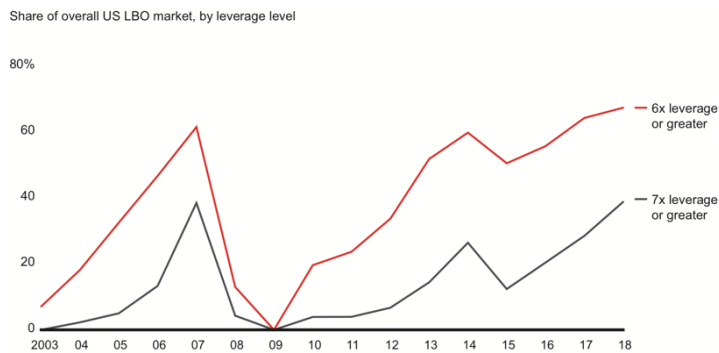
During the 50's decade, Jerome Kohlberg was also important. He conducted, together with a group of investors, the acquisition of Stern Metals. Stern Metals acquisition might also be seen as an LBO operation. What is interesting about this acquisition is the fact that Jerome Kohlberg would have sold the company afterwards for a price six times higher than the total amount he acquired it for.

At that time, the term LBO as it is known nowadays was not known yet. It would be during the 1980's when the term as we know it today was born. Jerome Kohlberg son together with Henry Kravis and George Roberts will fund in 1976 the private equity firm known as Kohlberg Kravis Roberts (KKR). KKR specialized in the acquisition through the use of LBO methodology and will be considered the first ever private equity firm. During the 80's there was a boom in the LBO acquisitions and the total investments rose quickly. However, not everything was as bright as it seemed. Paul Volckler and John Shad, chairmen of the Federal Reserve and the Securities and Exchange Commission respectively, pointed out that the high amount of debt used in these transactions led to a reversed debt pyramid. This effect, they said, would lead to a crash. However, the market sentiment was very positive. Which led to the biggest deal ever seen at the end of the 80's. The acquisition of RJR Nabisco by KKR. It was a deal that closed in a \$31.1 billion takeover. This amounted to a total of \$109 per share, when RJR Nabisco was trading at \$55 before the deal.

The sentiment of the global market regarding LBO was very positive, and although during the 90's and 00's it would decline the total amount of investments, LBO's were seen as the future of the market and corporations. This idea can be observed in what Michael Jensen (1989) pointed out. He explained thoroughly how the organization after LBO was in some way stronger and more efficient than a public corporation, pre-LBO. On the one hand, to back his theory, he explained that due to the few shareholders inside a post-LBO organization, the leverage provided that allowed them to grow faster and the optimization of procedures led to this. On the other hand, those corporations that haven't gone through an LBO acquisition were weaker. He provided arguments such as the number of shareholders was larger and more dispersed, the low levels of leverage didn't allow them to keep a decent growth rate and the poor governance inside those companies.

After the boom in 1980, LBO activity declined in the 90's and in the 00's and the so popular PtP transactions dropped. However, the acquisition of private companies through LBO kept on steadily increasing. The purchase of divisions of big corporations grew during that time and contributed to 20% of the total amount of LBO acquisitions during that time.

After the 00's the activity of LBO transactions kept on growing and so did the value of the deals. This type of highly leveraged transactions is very dependent on the cost of debt for corporations, therefore in times where the interest rates are lower it is usual that companies are willing to pay more as it is cheaper and vice versa. This can be seen in the following two graphs obtained from the Global Private Equity Report of 2019 made by Bain & Company. These two graphs show that in times where interest rates are low, such as the period of the crisis in 2007/2008 and the moment we are on right now, LBO transactions will be more leveraged. Being more leveraged and being able to raise debt at a cheaper cost of debt undoubtedly will lead to organizations paying more for an acquisition.



Source: LPC

Figure 1. Share of overall US LBO market, by leverage

Source: Bain & Company (2019)

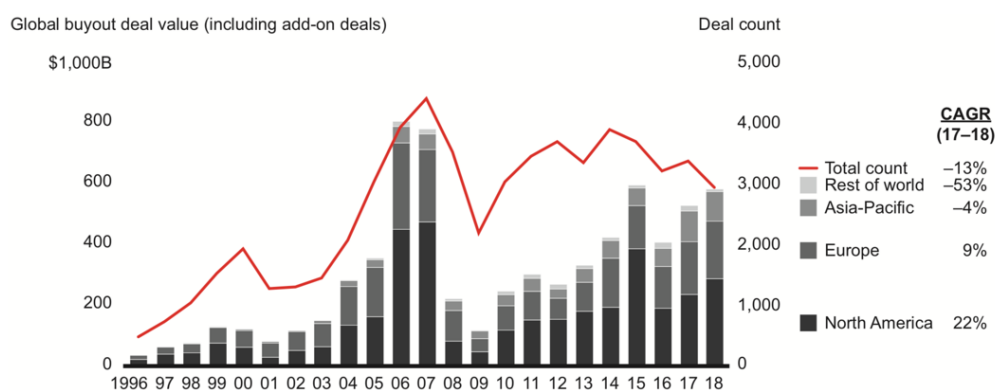


Figure 2. Global buyout deal value (including add-ons)

Source: Bain & Company (2019)

2.3 The LBO process and execution

An LBO process is not something that can be seen through in a short period of time. An LBO process is normally tedious and long, sometimes extending 3 years in time, for the total consolidation and implementation of the acquired company. This process is achieved in different stages, each stage being equally important on the success of the LBO. Besides the process of how an LBO is executed we will explain the key participants on the process and their different roles.

Beginning with the participants of an LBO, there are five key participants in an LBO transaction. The first of them is the so called “shell company” which refers to the organization, or the group of investors that will provide the equity capital to acquire another company. The second is the target company that is the company in which investors have deposited their interest and want to acquire. The third is the “NewCo” or new company that is the organization that arises post-LBO that usually consists of the merger between the company created to contract the debt required for the LBO and the target company. And the last ones are the investors and the financial entities that will be providing the different the equity and the debt.

The shell company as it is known is the one that will be making the purchase of the target company. The shell company will be the one that has to raise the capital required for the investment. It is called shell company because most of the times it will

be constituted as some form of limited partnership. As it is the shell company its balance sheet will be empty, until the investors raise the capital and contribute it. This is a very important consideration, most of the times financial companies use this shell company as a vehicle in which they can raise more debt than if they raised it through the target company. As the shell company has no “old” debt it will be able to hold more, leveraging more the operation.

The target company will be the one which is acquired. Therefore, it will suffer capital structure changes in its balance sheet. This is due to the fact that once the LBO has gone through the target company will have merged with what’s called the “NewCo”, the new company created after the LBO process. This “NewCo” arises from merging a company that only has the debt financed for the acquisition and a 100% stake inside the target company. This is one of the reasons why an LBO target company has to meet certain requirements in order to consider it as a potential target. As the target company will be the one that has to back the leverage raised for the LBO on top of its own debt it needs to meet some conditions previously. When looking for a target they need to have stable cashflows as the interest repayment of the new debt contracted will come from the cashflows produced by them, the target company. On top of stable cashflows, their amount of debt cannot be very high due to the fact that when merging with the NewCo both debts will be added. In some cases, refinancing might be needed. In other cases, maybe changing the tranche of the debt contracted by the NewCo, to a less aggressive tranche or with different conditions will be sufficient. On top of these they will require a stable future growth, a low degree of costs mainly focused in variable costs which they can cut in case they need to optimize profit and a good market share/position will be highly valued.

It is important to know that depending on the merger there are different types of LBO. In the case were the equity of the NewCo is moved to the target’s balance sheet we will be talking about a “merger leveraged buyout”. The second type is when the NewCo is absorbed and becomes part of the target’s activity in which we will be talking about “reverse leveraged buyout”. And the last of the cases is when the target company is absorbed by the NewCo and we would be talking about a “forward leveraged buyout”.

The last of the participants are very easy to understand. Investors and financial entities will be providing the equity and the debt, respectively, necessary to fulfill the transaction. The equity side of the investors is fairly easy, it is normally raised through a limited partnership, a vehicle that opens up collects the required amount of capital and then closes until the liquidation date. In this type of investments PE's have had a critical role in the fostering of LBO. PE's most common strategy used to acquire companies are LBO's therefore they have had a lot of impact in this area. Normally what a PE fund would do when investing is, they acquire the target through an LBO. After the acquisition they will hold the target company under their management for a period of 7 to 10 years. After the holding period is over the PE will then look for an exit to the company. There are different ways of selling the company "the most common route is the sale of the company to a strategic (nonfinancial) buyer; this occurs in 38 percent of exits. The second most common exit is a sale to another private equity fund in a secondary leveraged buyout (24 percent); this route has increased considerably over time. Initial public offerings, where the company is listed on a public stock exchange (and the private equity firm can subsequently sell its shares in the public market), account for 14 percent of exits; this route has decreased significantly in relative importance over time" (Kaplan & Strömberg, 2009, p. 129). Besides what Kaplan & Stromberg stated there is a fourth exit which is nowadays becoming more popular. This exit is the recapitalization of the company. A recapitalization consists in refinancing the company. When the company is finally re-leveraged this will allow the investors, who had contributed with equity, to cash out a portion of their share in the company. This cash out of equity investors is paid via dividends, so not all the times is as beneficial as it seems due to the tax effect on dividends.

On the debt side, it is more complex as companies use different tranches of debt to try and maximize value whilst at the same time reducing cost of debt. The different tranches and characteristics will be explained on another chapter, but at the moment just mention that they normally have a mixture of senior debt, and subordinated debt in the form of mezzanine or unitranche, sometimes even both, and it can be seen to raise debt through high yield bonds as well.

As mentioned previously, one of the most important aspects of an LBO is the previous analysis done on the target company. This is a crucial point in these operations as it will

determine the result of it. Analysts have to pay a lot of attention and minimize errors, being highly leverage can bring a lot of benefits or bad consequences. As the target company will be the one repaying debt interests with their cashflows generated and also, they will have their assets as collaterals, a minimal error can turn out to have catastrophic consequences on the final result of the operation.

2.4 The LBO financing

As it has been already mentioned, the key feature of an LBO is the amount of debt they employ in comparison to the equity portion. This leverage ratio amounts normally to 70% or more of the total capital amount. To manage efficiently the capital structure of both the target and the NewCo is essential. But an even more important part of an LBO is debt structuring. As stated by Pignataro (Pignataro, 2014, p. 3) “There are three core components that contribute to the success of a leveraged buyout: Cash availability, interest, and debt pay-down, operation improvements and multiple expansion”. These three core components described by Pignataro are crucial to the success of an LBO. They will allow the shell company to maximize value of the post-LBO NewCo.

When it comes to the financing of an LBO, it has already been mentioned the importance of debt. However, LBO’s are not merely financed by debt and they have an equity portion which contributes as well to the total amount of capital employed. Thus, the importance to distinguish the differences between shareholders and debtholders. Shareholders are the investors that have contributed the equity portion of the LBO. Most of the times they will be charging the company in which they have a stake a bigger return than the creditors. This is due to the bigger risk of investing equity. Shareholders will only receive a return after the interest have been paid. This means that they are subordinated to debt, even junior debt or subordinated debt. They are dependent on the solvency of the company and due to the subordination and the increased risk their expected return is higher.

Debt is crucial. Shell companies will be backing and repaying interests with the target company assets and cashflows respectively. This will optimize the capital structure if done properly and increase value. However, it is not the only way to try and

maximize value. Boston Consulting Group (BCG) back in 2009 on their “Value Creators’ Report – Searching for Sustainability” identified what they called the four pathways to value creation: The first of them, the growth engine, stated that those companies that were able to achieve a stable sales growth above the GDP average would be generating value to investors. Secondly, the cash machine, those companies that might not have significant sales growth but due to their operating working capital, investment policy or operational efficiency were able to create a large amount of cash. Thirdly, we encounter the portfolio migrator, and the underlying principle of the strategic focus on where the company wants to be in the future. Lastly, value “impresario”, which is no other than mature companies that due to size and complexity matters had to pursue all the previous paths to keep on generating value.

Boston Consulting Group described more general ways to obtain value. It is true that when PE’s acquire companies through LBO’s they tend to use those pathways in order to analyze potential targets. However, as the main element present on an LBO is debt, shell companies can also distribute debt differently and many times will be more efficient to have a better mixture of debt than to try and have a larger portion of debt-to-equity ratio or some of the previous mentioned qualities stated by Boston Consulting Group. “The variety of kinds of debt used in these transactions emphasizes the importance of the choice of debt instrument and not just the quantity of debt in capital structure decisions” (Axelson, et al., 2013, p. 4).

Normally a LBO will consist of a first tranche which is senior bank debt obligations and a second more junior tranche, subordinated to the senior bank debt. Inside these two main categories we find even more tranches within. The senior bank debt normally will consist itself of different term loans. And within the subordinated debt the most popular instruments to use are mezzanine debt and second lien debt. We could also include in this subordinated debt the high yield bonds which are sometimes also used as a way of raising debt. With all these components we would usually consolidate the debt financing of an LBO. The most common approach is that on an LBO operation there is 50% of senior bank debt, 20% to 30% of subordinated, mezzanine or second lien, debt and the remaining 20% to 30% will be equity. Now we will further explain the different tranches more thoroughly.

Senior bank debt is the first one to be repaid in case of insolvency, liquidation or bankruptcy. Due to this, they will be charging less interest than the more aggressive tranches. It is called usually senior bank because banks mostly are the ones providing this type of financing. However, there might be cases in which this senior debt might be granted by other entities such as institutional organizations for instance. Generally, this debt's interest rate is a variable rate, also called floating, such as LIBOR or EURIBOR and a fixed rate on top of the variable. So, it's normally either LIBOR or EURIBOR and two to three points of addition. The expected return for the institutions providing this finance is in between 5% to 8% always depending on market conditions and the variable rate. Senior debt of this type will normally make the company that applies for it to incur into certain covenants with the creditor. Normally there will be very few creditors mostly just one and they will set the corporation some ratios they ought to maintain to avoid the bankruptcy or the insolvency. The creditors that get involved in this debt normally will require the company some of their assets as collateral. In the case of an LBO the assets that will be backing the financing will be the target company ones. To cover themselves even more, creditors will apply what is called a haircut on those assets. A haircut is basically providing financing for less than the market value of those assets to hedge even more the risk of default. These loans will normally be granted for 80% of the market value of the assets placed as collateral. Inside the senior bank debt, there are different tranches which vary in terms of repayment, maturity and the spread over EURIBOR or LIBOR. The first of the term loans, commonly referred to as term loan A is usually a loan with approximately 7 years of maturity and is amortized constantly in equal installments. As it's the less risky term loan it will have less spread than the rest, depending on market conditions, but will be around 250 basis points. The term loan B is riskier than A in the sense that it has longer maturity, around 8 years, and it's a bullet loan. Bullet repayments are the ones in which the principal of the loan is repaid mostly at maturity. The first years there might be some sort of principal, very small in proportion to the last repayment. And the spread will be situated around 300 basis points. Besides these two term loans you could have many more that will be similar to the term loan B but increasing the maturity. As maturity is increased but the repayment remains bullet, their spread will also increase. As the different term loans of senior debt vary in maturity, repayment type and so, they might incur in different covenants some more restrictive than others. These covenants aren't fixed, meaning that they will not only vary depending on which loan you decide to use but also on the

capital structure of the company and its ability to repay the debt, or guarantee their cashflows.

Subordinated debt is the other big tranche of debt. It is a more aggressive type of debt. Organizations might be able to get more financing out of it. However, it involves more risk than senior debt due to the fact that in case of insolvency it gets paid after the senior debt thus the return expected from creditors is higher but will be lower than the shareholders. In this category it's unusual to find banks as creditors. It's more likely that institutional organizations, pension funds, investment funds or some PE provide this type of credit. Subordinated debt will be majorly a bullet loan, in which the debt is repaid fully at the end of the term. Similar to the senior debt they will have a variable rate either LIBOR or EURIBOR plus a 3% to 5%. Again, bear in mind that it might change depending on market conditions and the actual situation of interest rates. It is common that subordinated debt includes warrants rather than the strict covenants seen in senior debt. These warrants will allow the creditors to acquire a certain number of shares of the corporation to increase value in case the company has an equity upside. These warrants allow the creditors to have a possibility of becoming shareholders as well. Subordinated debt doesn't come with the covenants senior debt does. They have some clauses companies must maintain but, in the end, they are more flexible. The expected return of creditors is normally from 12% to 18%. It is also important to mention that subordinated debt is normally longer term than senior debt, and due to being bullet it allows companies to avoid high leverage levels during the first years of the term. Inside subordinated debt we might find sometimes two other sources of capital: second lien debt and high yield bonds. Second lien debt is a tranche that is seen as a junk senior debt. What is it meant by this, simply that second lien is subordinated to senior bank but due to covenants or contracts. Structurally it is appreciated as some sort of term loan D, or D tranche of senior debt. It is a type of debt that is not commonly used, mainly it is employed on LBO where large amount of capital needs to be raised. When speaking about high yield bonds, it is referred to bonds rated BB+ or lower by the rating agencies. This type of debt has begun to regain importance in 2019. The reason for this boom in popularity is that it allows companies to raise more subordinated debt than using senior bank debt, due to the covenants imposed, and also because spreads over the cost of debt are becoming tighter. Typically, a high yield bond will be emitted on 10-year maturity. Normally as it is a riskier bond they will also be "callable" by the

company. This means that if the company wants to repay all the bond they can do so, most of the times incurring in having to pay a premium above the accorded bond price. And high yield bonds will usually be bullet type of loans.

The last source of finance is capital. It is the riskiest inversion due to the fact that it is subordinated to both debts. Shareholders receive dividends after having payed the interests of any debt contracted. And in case of bankruptcy or insolvency they will be the last ones payed as well. For all these reasons they will be asking for the highest returns out of all the previous sources of funds. They will be expecting from 25% returns onwards. These returns will be based on the leverage the company already holds. This is related to the theory stated by Modigliani and Miller, in which they pointed out how shareholders will require a premium based on the risk of not being able to pay back the debt held. On top of Modigliani and Miller's theorem, for private companies the premium will even be higher. This premium paid for private companies has to do with the low liquidity they have compared to a public company which has more liquidity and will be able to find more buyers quicker.

2.5 The use of leverage: Advantages and disadvantages

The advantages and disadvantages of highly leveraging the acquisition of a company have been mentioned throughout this academic paper. In spite of the various mentions we have made on the topic, as leverage is the key factor on LBO's, we thought it was necessary to compile all the benefits and the dangers this type of acquisition have. On top of the benefits or drawbacks we will also be going through the value creation process and the ideal candidates for any LBO operation.

2.5.1 Advantages

Financial debt is a cheap source of financing. Leverage will normally be a cheaper source of funding due to the tax benefits of interests. When speaking of tax benefits, it means that as you do pay taxes on interest you taxable base will be reduce, thus you will be paying less than the actual amount you should have paid had you chosen to use equity instead (as dividends are payed after taxes they do not deduct the taxable base). Another benefit which LBO's take advantage of is the increased returns for their equity investors. Due to the small amount equity investors have to raise, a

minimum increase in enterprise value will lead to a higher change in their share of the company, thus improving their position. The last of the advantages of being highly leveraged is that companies have to focus in efficiency. As their cashflows are used for debt repayments they need to focus in increasing net income and free cashflows to avoid default.

2.5.2 Disadvantages

Not everything involving an LBO type of acquisition is beneficial. The same way the use of leverage can have positive consequences it can sink a company. First of all, there needs to be controls in leverage, otherwise it can reach a point that due to the increase default risk, the spread of the cost of debt increases so much it becomes more expensive than cost of equity. Therefore, the first risk being observed is the default risk. Secondly, companies might experience immense variations in their profit and loss account. Due to the fact that a share of the cashflows generated and the profit for a year to repay debt interest their profit and loss might suffer the consequences. Furthermore, there is the bankruptcy risk that companies will face if they are not able to meet the short-term requirements of interests, dragging the whole company to bankruptcy. Thus, the reason of properly analyzing the maximum debt capacity of a company.

2.5.3 Value Creation

Undoubtedly, what will create the most value on an LBO is using leverage efficiently. There are several reasons for it one of them is the fact that when using a high amount of debt for an acquisition, as time passes, and interests are repaid the equity holders share of the total enterprise value will increase. With little contribution to the company in the beginning, and debt being repaid as the assets have to equal equity plus liabilities, when interests start to get repaid the equity value must go up, so it increases the share of equity holders in the enterprise value. Secondly, using leverage will allow companies to benefit from fiscal advantages. As interests are subject to taxation, they will be creating a tax shield that the company will benefit from, making debt a cheaper source of funding than equity. And lastly, if managed properly the use of leverage will usually lead to an increase in the exit multiple.

2.6 LBO candidates

Implementing an LBO strategy is a challenging task. There needs to be certain pre-requisites met by the target company that will enable them to maximize the value of an LBO. All of the different elements mentioned throughout this academic paper will have their role on the final value creation, but selecting good potential targets can exponentially increase the value crating process if choosing the right company to invest in.

A good target company is the one that is able to have stable cashflows that will be able to support the increase in leverage and the debt repayments. On top of this aspect there are many more taken into consideration by the analysts looking for potential targets. The company needs to have room for operational improvements, they will be required to have little capital expenditure and reduce operating working capital. This is a very important part. Capital expenditure and operating working capital have direct impact in the free cashflow of a company. As interest repayments are taken out the free cashflow both capital expenditure and operating working capital need to be minimized. Analysts will also be required to think of an exit strategy for the company once they have optimized it. This is also a key point in the return to investors. The IRR of a project is dependent on time. The period of time any investment is held by a particular investor is known as holding period. This holding period influences directly the return of an investment. At the beginning of the holding period there will be value generated, translated into increased IRR in the future. However, there is a point in which the increase in value is not proportionate to the increase of the holding period. At this point every period you hold the investment the less value it will be generating for your investor's returns.

Thus, if the LBO was thought to return 25% IRR to investors in 5 years, and for any reasons the exit route for the company sees any drawback the annualized IRR of the whole project will be reduced every year it goes on since that fifth year.

2.7 Capital Structure

The capital structure of a firm refers basically to how do they finance their assets. It refers to the different possible mixtures of equity and debt, including hybrids, a company might have. Each company might find different capital structures depending on their amount of assets, or debt or even equity.

This academic paper will firstly address the two main theories regarding capital structure: Modigliani and Miller (1958) and the Trade-off theory. Once the theories have been explained then we will be developing an explanation regarding the capital structure of a pre-LBO structure and the post-LBO situation.

Modigliani and Miller's theorem is widely used and one of the principles of capital structure. They both advocate that the value of a firm will not be affected by the financials of such firm. When they first proposed the theory, they assumed the market didn't have any taxes. Therefore, it didn't matter if you financed your assets through equity or debt. This theory has also a second conclusion. The conclusion they arrived to was that, despite the fact that the value of a firm wasn't determined by how they financed themselves, the cost of equity is indeed directly related to the increase in leverage. As the firm becomes more leveraged the shareholders will gradually become more concern until the point in which they would ask for a premium. This theory as it is based on the fact that organizations were not paying taxes is not very adequate. Although it has been adapted to modern days, it constituted the base of capital structure theory.

On the other hand, we have the trade-off theory. The trade-off theory does take into account taxes and tries to go a step further in the development of Modigliani and Miller's theorem. Their theory about the cost of equity was correct and is the one used for the trade-off theory. The problem of Modigliani and Miller is that they didn't consider taxes, and as interests are tax deductible, they will end up being cheaper up to a point in which the risk for taking on more leverage exceeds the tax benefits, then the cost of equity will become cheaper. "The trade-off theory suggests that the capital structure of a firm should be tailored to the characteristics of that firm's assets. For example, profitable firms with stable cash flows should have high leverage, since they are better at utilizing debt tax shields and have lower probabilities of financial distress,

and costs of financial distress are likely to be higher for firms with more investment opportunities and more intangible assets.” (Axelson, et al., 2013). The trade-off theory tries to provide a deeper understanding of capital structure. What the trade-off theory tries to shed light on is that every company will have one optimal capital structure that will not be the same for the rest. This has to do with what Modigliani and Miller explained of the different required returns between shareholders and debtholders. Similarly, companies will have a threshold in which their capital structure will end up maximizing their value. The key point is that the trade-off theory does take into account taxes and the deductions coming from interest repayments. Hence, any change in the source of funds will have a direct impact on the weighted average cost of capital (WACC). When debt increases the WACC will be lower, due to the tax savings from interests, and at the end the WACC being lower is translated into a higher value of the company when doing the present value of the free cashflows and dividing them by the WACC.

As a conclusion to the academic theories regarding capital structure we can state that the optimal capital structure for a firm is a balance between the risk. As Modigliani and Miller pointed out there’s a point in which the risk transforms into more cost of debt. And the importance of trying to minimize the WACC in order to increase the firm’s value

2.7.1 Pre-LBO

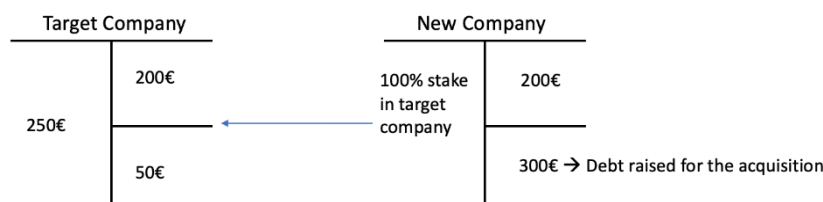
As it has already been mentioned on this academic paper, on an LBO we will have the merger of a “NewCo” and a target company. There are many types of LBO depending on who merges to the other, and which balance sheet will absorb the other. For the purpose of this academic paper we will be considering we are describing a forward leverage buyout as it is the most common scenario.

Assuming the newco will be acquiring the target, company there will be some considerations. We need to look at the composition of their balance sheets. On the one hand, the target’s balance sheet is a normal balance any firm might have. They will have a portion which is equity, shares of some sort and they will have some debt as well. On the other side of the balance sheet they will have their assets.

On the other hand, the newco will be structured as follows. They will have a portion of equity that belongs to the shareholders, so they will have some shares and a big portion of debt which has been used to finance the acquisition of the target. On the asset side of their balance sheet they will have their stake on the target company.

These two pre-LBO structures can be seen in the following chart. As we can see the target company can have anything on their balance sheet, as every firm will have a different balance sheet. On the new company we will always have an equity portion, and the leverage require for the operation. And on the asset side the stake we have on the target company. In this example we are going to be acquiring the target company for 500€. By valuing our stake of 100% in that amount between debt and equity. With these assumptions we will be paying a premium over the book value of the target's company equity book value. That premium is going to be reflected in post-LBO structure as goodwill generated from the acquisition of the target company.

Figure 3 Explanation of pre-LBO structures



Source: Own Elaboration

(Own elaboration, 2019)

2.7.2 Post-LBO

Once the LBO has been done, both the target and the newco will begin a stage in which they have to merge. Combine their productive assets and find how the new corporation will be constituted. In most cases in an LBO they will be valuing the target company higher than it is reflected in their book value. This increase of the purchase price is due to a premium paid to the shareholders for their participation in the company. The premium paid for each share will end up becoming a higher purchase price, that difference between the purchase price and the book value of the target company being acquired is reflected in the balance sheet as goodwill. Investors are willing to pay a higher purchase price planning on improving certain aspects of the company. Most of the times companies that are acquired through LBO will be having

synergies with other corporations. These synergies are benefits obtained between two companies and usually have to do with cost reduction, or revenues improvement. This strategy is generally implemented by private equity firms. Private equity firms will purchase a company and keep it on their portfolio for some years, approximately 7. During this holding period, they will make changes to the operational structure of the company and look for synergies between their companies held. The synergies created will end up benefitting both companies, the purchased one and the one they already have under management. Another very typical LBO operation is purchasing add-ons for companies already acquired. These add-ons will provide benefits in the sort of increased capacity, new product lines or increasing market share or penetration. The add-ons purchased will also allow the firm to increase the book value of the company they are purchased for. Which when being disinvested will create a higher margin for equity holders as well.

Going back to the example mentioned before. The post-LBO structure will be as follows.

Post-LBO Structure	
250€	200€
300€	300€ → Debt raised for the acquisition
	50€ → Target's debt

Source: Own Elaboration

Figure 4. Post-LBO structure

Source: Own elaboration

We can see that the target and the newco have formed the post-LBO structure. The equity side remains with the same amount as the shareholders haven't changed for the newco as they acquired the target. Easily explained, the equity holders that have contributed on the "NewCo" are the ones that will retain the control of the company, so the equity side doesn't change. The liabilities side will have the addition of the target company debt and the debt the "NewCo" raised to finance the acquisition. Hence, the importance of a thorough analysis of the target company, they can't have much debt otherwise this new post-LBO structure will not be stable. On top of that, the interest repayments won't be met. The interesting part is the asset side. As it was mentioned before, usually on an LBO you will be paying a premium to the current shareholders of

the company to incentivize them to sell their participation. This premium might vary from company to company, but normally it will range between 15% – 20%. That premium is one of the reasons for a higher purchase price being paid. On top of the premium, as the company is being financed mostly by leverage it will allow investors to pay a higher amount for the company whilst keeping the equity raised equal. Those two factors lead LBOs to pay a higher amount for companies than it is reflected on their book value. That difference is represented in the balance sheet as goodwill. Goodwill is referred to as the amount paid above the book value, is regarded as an intangible asset because the company is worth more than its book value. For instance, if someone was to buy Coca-Cola, it will probably have a large amount of goodwill due to the brand image and the visibility of the brand. In this case the post-LBO structure asset side is comprised by the productive assets of the target company, the 250€, and also an extra 300€. Those 300€ is considered the goodwill payed for the company.

Paying above the book value of a company is not optimal. Although investors might be willing to for strategical reasons, it can have negative effects later on. When paying a higher amount for a company you are “overvaluing” the company. That over valuation can lead in the future to company losses. If you disinvest the company and for some reason the market value is lower, meaning investors are no longer willing to pay a higher price for it. Your company will suffer the effects of the loss in market value proportionately to what you payed for it in the past, so the higher the goodwill you generated in the past the bigger the loss in the future in case of loss in market value.

Chapter 3. Case study

In the case study chapter, we will explain the two most common valuation methods for LBOs, how to develop a normal LBO model and, finally, we will explain our own developed model. In this academic paper we wanted to explain first how a typical LBO model is conducted, and then how we have built the model for this case study. The reason for this methodology is that to show the impact of the cost of debt we had to make some assumptions and changes in our model compare to a typical procedure of how an LBO is developed. So, in order for the reader to understand why we have done a different approach we thought that by explaining previously how it is done it would be easier.

3.1 Valuation methods

This section will describe and explain the most common methods used for valuing companies nowadays. Having given an explanation of the two most common methods we will explain the chosen one we have used for the case study and the reasons we thought it was the most appropriate for the purpose of this academic paper.

3.1.1 Adjusted Present Value (APV)

Adjusted present value is a methodology that has been gaining popularity amongst professionals. This methodology is similar to the discounted free cashflow methodology, but it differentiates in the sense that it takes into account separately the equity investments from the financing side. The aim of the adjusted present value is to reach an enterprise value by doing a net present value of the project being analyzed as if it was only equity and then adding up or subtracting any adjustments arising from the financing effects, such as the tax benefits of interests.

When calculating adjusted present value, it has to be considered what discount rate to use. As the first step of an adjusted present value is to calculate the net present value of the project if only equity was used, then the discount rate it must be used is the rate that those equity investors will be requiring for their investment. A good benchmark for the discount rate is the cost of equity. Calculated through the capital asset pricing model formula.

On the other hand of the adjusted present value we have the benefits the project has incurred in due to the financing of their activities. Normally a company will have very similar adjustments to be made. Where the key areas are: Interest tax benefits, costs of being in financial distress, subsidies or issue costs. There are more but these are the key ones. Despite there being many, adjusted present value was thought to use in cases where the tax benefits were large. Leverage will allow companies to reduce their taxable base (due to debt being subject to taxation, and equity not) thus they will be producing a smaller tax bill, reduced by the total amount of interest times the tax rate.

As it can be seen it looks a good methodology to use in an LBO due to high leverage of the acquisition. However, when explaining the discounted free cashflow methodology we will compare them and see which one fits better. Why is it a method that professionals have been employing due to some benefits that we will see now.

Professionals have said that the adjusted present value method is in most cases easier to interpret, being more transparent with where value comes from and the assumptions. It is also an easier method to conduct, as discounted free cashflows can be incredibly complex. And lastly because as for the discounted free cashflow you need to be more precise and require more data such as the debt-to-equity ratio with the adjusted present value you would just need the debt for each of the years. All of these advantages, or benefits in using the adjusted present value were stated by the Harvard Business School, 1997 “weighted-average cost of capital...is now obsolete. Today’s better alternative, adjusted present value, is versatile and reliable. It will likely replace WACC as the DCF methodology of choice amongst generalists. APV is usually, if not always, simpler, more accurate, and/or more informative than using the WACC”

3.1.2 Discounted Free Cashflows (DCF)

Discounted cashflows, is the most popular valuation method. It is used in all major banks, when valuing a company for a merger and acquisition type of operation or even LBO’s. Is a very useful method that will give the user an approximate enterprise value, you can even get the equity value of it.

A good definition of what a discounted free cashflow process is “The discounted cash flow method takes the company’s projected unlevered free cash flow (UFCF) and discounts it back to present value. We typically project the company’s cash flows over a

fixed time horizon (five to seven years, for example). We then create a terminal value, which is the value of the business from the last projected year into perpetuity.” (Pignataro, 2014). Pignataro described perfectly all the key elements that take part in a discounted free cashflow. However, there are some considerations that need to be looked at besides his. First of all, discounted free cashflows use the unlevered free cashflow as it will be providing the real value of the company. The unlevered free cashflow takes into consideration what is left to the enterprise after what is payed and owed. Secondly, at the end of the fixed horizon he describes we will be applying a terminal value to the cashflow. In order for this to happen they need to be stable. With the terminal value we can either apply an exit multiple, saying the company will grow a number of times EBITDA or EBIT, or we can project it to perpetuity. When choosing to project the terminal value to perpetuity we will be another assumption to the model. The growth rate of the company. This part has to be very precise, as an over assumption can lead to having unstable growth, even higher than the GDP of the country in which the company operates in.

It might seem that by using the unlevered free cashflows we will not be taking into account the debt, and its cost or even the equity. Truthfully, once you have the projections of the cashflows for the period being considered, you will be doing a present value of them, using a discount rate. The discount rate used is the weighted average cost of capital. In this weighted average cost of capital, you will be taking into account the capital structure of the company. You will have the cost of equity proportionate to the share of equity over the total capital (debt plus equity). This cost of equity will then be added to a cost of debt. The cost of debt will be taking into account the tax effects, and again also proportionate to the total share of debt over capital. So, in the end even though the cash flows are exempt of any leverage effect, when discounting them to present value using the weighted average cost of capital you will be valuing the impact of financing benefits in the valuation. However, it does not consider all sorts of financing benefits, it just takes into account those benefits that have been achieved thanks to the interest repayment of debt.

3.1.3 Chosen methodology

For our case study we have considered that to conduct a discounted cashflow methodology was the best option. Although the adjusted present value, considers the effects of leverage financing it is a more complex method that at the end will lead us to the same conclusion. In discounted cashflows we take into account the cost of debt through the discount rate, a weighted average cost of capital.

We will be conducting two different analysis in other to see the impact of the cost of debt in the return after selling the company. For the normal acquisition we will be valuing the equity of the company. This equity value will be obtained by subtracting net financial debt from the enterprise value obtained by the sum of the discounted free cash flows to the present value. The exit value for the operation will be done as an EBITDA exit multiple. Once we have the purchase price, which in this case will be the equity value and the exit price we will then calculate the IRR for the operation.

This IRR will be compared to the one we obtain form the LBO acquisition model. In this case the procedure will be very similar to the previous one. However, once we have reached a purchase price, we will apply a percentage of leverage to that price. This will lower the equity invested in the company. For the exit price we will also apply an EBITDA multiple, however the net financial debt we have used to finance the leverage portion of the purchase price has to be subtracted. One of the effects this leveraging of the company will have is that our cost of debt will increase proportionately to our debt. The results obtained will be compared, the equity IRR from a non-LBO acquisition with the equity IRR of the LBO. They will have had the same conditions for their valuation therefore the comparison of the both won't be biased. However, we will also be comparing different levels of leverage and their IRR between them under the same circumstances, only varying the cost of debt due to the increase in default risk of the project. This will provide a better understanding of how debt affects the IRR of an LBO.

3.2 Usual LBO Model Building Steps

Throughout this part of the chapter and before explaining how we have developed our own model; we will provide a deeper explanation of the usual steps taken to build a model based on an LBO acquisition type.

The first step in any model is to gather the historical data you have available. Once historical data is obtained, we need to move on to make the operating assumptions the model will consider in order to project the income statement and the balance sheet. It is very important to exclude the interest repayments out of this first step, as they will be calculated further on.

Once we have the historical data and projections for the income statement, excluding interest expenses, and balance sheet the next step is to build the cash flow and the operating free cashflow. An important consideration to take into account in this step of the model development is that the free cashflow is going to be returning a higher number than what it should. This is due to the fact that we are not yet considering interest repayments in the income statement.

Following the cash flow, we have to make the acquisition and the structuring assumptions for the transaction. This is a very important step and needs to be thoroughly studied as it will determine the characteristics of the whole transaction so overstating or underestimating an assumption can have grotesque consequences. At this point is where, based on the type of transaction you are analyzing, you will set the different debts that will be used in the acquisition, if the company will be paying a premium to the shareholders for the acquisition, if it's going to be cash or stock or half and half, if it is a purchase of a public company study the dilution or the accretion of the price per share...

Continuing with a usual model, the sources and uses of funds. This step is a more detailed version of the previous one where the main assumptions for the transaction were set. It is built in order to establish what are we going to use the capital we are able to raise. Normally the uses of funds will be destined to pay for the enterprise value of

the target company (or the agreed purchase price). Whilst the sources of funds relates to where does the money come from; the proportion of debt-to-equity and the different debt instruments that will be employed in the transaction.

After having done the sources and uses, is when the debt schedule is developed. This debt schedule will later be linked back to the income statement and impact in the cash flow as well. It is important to develop a debt schedule after having set the assumptions of the leverage because this will allow the company to know whether the cashflow can be used to repay debt, if they are required to have a debt service reserves account, how they will be repaying the subordinated debt... And then have a better estimation of the amount of cash they will be able to build up after repaying debt.

Once the debt schedule has been developed is when the last steps of the LBO model building begin. At this point the enterprise value is calculated. It can be done by two methods (there are more but these are the most common); either through a multiple of EBITDA or by a discounting free cashflow methodology. Once we have obtained the enterprise value, the next step is to reach a theoretical or residual equity value after the repayment of the outstanding debt. This theoretical equity value is obtained by subtracting the net financial debt and any other adjustments that might have to be considered from the enterprise value. This difference between equity value and enterprise value is referred to as the “equity bridge”.

The last step is to calculate the exit price of the project, normally done again through a multiple of EBITDA and adjusting the potential future enterprise value by subtracting the equity bridge. And once we have the entry equity value and the exit equity value, the internal rate of return can easily be calculated.

3.3 Development of Own Model

In our model we have considered three different case scenarios: Base case, high case and pessimistic. These assumptions are operational assumptions. We have chosen to include different scenarios, because although the academic paper tries to show the impact of the cost of debt on LBO profitability, LBO are also very closely related to operational improvements. It was considered as a good idea to also be able to analyze

how operational improvements are related to this acquisition type. Because as we will see in the conclusions, even though you acquire a company using an LBO if said company doesn't have good operational results it will end up going bankrupt. On the other hand, if it is optimized operationally, it can increase the impact that leveraging the acquisition has on the final IRR for the investors.

For the development of the case study, and in order to keep the numbers as accurate as possible we have based our historical data on those provided by Telepizza in their annual reports. This has been done this way for two main reasons: the first one being so we can have more accuracy in the results obtained by the model. And secondly, as recently Telepizza has been involved in an LBO public-to-private transaction we will be able to see some reasons why it might have been chosen, or the possible future outcomes. Having the historical data already we moved on to the assumptions for the projections of the historical data.

The assumptions were carefully thought of, we developed three cases for the operational assumptions a base case, high case and pessimistic. Some like depreciation and amortization have been calculated over the total amount of net fixed assets and as a percentage over sales. For the operating working capital, we have calculated payables, receivables and inventory turnover as key metrics for the proper calculation of the operating working capital.

Once we have the profit and loss and balance sheet both historical and projected, we moved on to develop the operating free cash flow and proceed with the valuation of the company. We decided to conduct a discounted free cash flow methodology. So, we brought the future free cash flows to a present value. For the terminal value we used a growth rate to perpetuity. This growth rate that we used is 2.15, we decided that as the historical data was based on Telepizza's financial statements to use the growth rate provided in their annual reports as well rather than assuming one for the project. As we have used a weighted average cost of capital as the discount factor, we also had to establish the assumptions for both, the cost of debt (main focus of this academic paper) and the cost of equity. Beginning with the cost of equity, we have assumed a capital asset pricing model in order to calculate the cost required by investors. In order to conduct it we have used the Spanish sovereign bond for 10 years as the risk-free rate, a

beta of 1.5, considering the company to have a higher risk than the market due to poor operating working capital and operating free cashflow generation. To calculate the cost of debt that we would be using throughout the model we have used as a benchmark the financial metrics that Moody's included in their 2018 report. These financial metrics are the ones they have employed to rate the different companies. They can be observed in figure 5.

Figure 5. Financial Metrics

Aggregate Metrics by Rating Category											
	EBITA / Average Assets	EBITA / Interest Expense	EBITA Margin	Operating Margin	(FFO + IntExp) / IntExp	FFO / Debt	Retained Cash Flow / Net Debt	Debt / EBITDA	DEBT / Book Capitalization	CAPEX / Depreciation	Revenue Volatility
Aaa	12.3%	11.5	30.6%	25.4%	17.2	41.5%	31.4%	1.9	35.1%	1.1	6.8
Aa	10.2%	13.9	19.5%	17.4%	15.2	43.4%	30.1%	1.8	31.0%	1.3	8.6
A	10.8%	10.7	15.8%	14.9%	13.1	34.1%	27.3%	2.3	40.7%	1.3	7.4
Baa	8.7%	6.3	13.9%	12.0%	8.1	27.1%	25.3%	2.9	46.4%	1.2	10.7
Ba	8.5%	3.7	13.3%	11.5%	5.1	19.9%	19.7%	3.7	55.7%	1.2	14.3
B	6.7%	1.9	11.2%	9.0%	2.9	11.7%	11.5%	5.2	65.8%	1.1	18.7
Caa-C	4.1%	0.7	7.0%	4.6%	1.6	4.6%	5.1%	8.1	89.3%	0.8	18.9

Source: Moody's Financial Metrics™

Source: Moody's Financial Metrics

In order to make the cost of debt as accurate as possible we have used the IBOXX index provided by Markit to apply a spread to our risk-free rate based on the rating of our company obtained by using the financial metric table of Moody. The spread to be applied and the yield that the IBOXX index gives can be seen in figure 6.

Figure 6. IBOXX Index

Spread (b.p.)		Yield (%)	
Europa	140.8	Europa	1.05
AAA	20.7	AAA	0.11
AA	54.9	AA	0.55
A	103.7	A	0.89
BBB	218.8	BBB	2.01
BB	305.0	BB	2.89
B	592.0	B	6.0

Source: IBOXX Index by Markit

Once we obtained the ratios of Telepizza's historical data, we got it was rated BB according to the financial metrics included in Moody's report. Consequently, to the risk-free rate of 1% we added the spread given to the BB rated companies in the IBOXX index. That way we reached a cost of debt of 4.05% for our model.

Once we have calculated the enterprise value for the company, by discounting the operating free cashflows we have to deduct the net financial debt and minorities to reach

a theoretical equity value of the company. This theoretical equity value will be used as the purchase price of the company. To get the IRR of the project we need an exit value to see the return on the investment. Thus, we have used an exit multiple based on the industry comparable situated around 6/7 times EBITDA. By using an exit multiple, we will be getting an enterprise value at the end of the holding period so we will have to subtract the net financial debt and minorities to reach the future equity value. Having both equity values we can easily calculate the IRR for the investors.

This is the first part of the model, which is a normal acquisition without any leverage and a normal cost of debt. After having done this process we will use the same model but now for an LBO acquisition. The only change that will vary with respect to the previous one is the amount of debt used in the purchase. Previously we considered a purchase price which was pure equity. However, as we are seeing the impact of cost of debt on an LBO, we will need to look at a leveraged acquisition. The previous model will be used as a benchmark, in order to have an IRR to which we can compare the results of the LBO and the cost of debt impact. So now, from the equity value of the company we got by subtracting net financial debt and minorities to the enterprise value we will have to apply a percentage of debt. This will reduce the amount of equity that investors have to raise. For this academic paper we have considered different leverage amounts: 20%, 40%, 60% and 80%. Once we have set the total amount of equity invested by deducting the percentage of leverage to the purchase price, we proceed to see the IRR provided by an LBO. All things being equal, between an LBO and a normal acquisition paid all with equity, we can clearly see that if there are not operational improvements LBO will be more profitable most of the times.

Using leverage as a source of capital to pay for the purchase price will have different impacts on our model that we have considered. First of all, and the most important for this academic paper is the relation between leverage and the cost of debt. As we mentioned before when explaining the theories of capital structure, Modigliani and Miller explained this relationship. They stated that when a company increases its financing, thus their leverage proportion, the cost of debt required by the debtholders will also increase. Debtholders want to get their money back, through the interest repayments, thus when a company increases its leverage there is a higher chance that they enter into default for not being able to pay back so much debt. Furthermore, there

is a point in which the risk of bankruptcy is so high due to the excess leverage that the cost of debt becomes higher than the cost of equity. That's the first impact of leveraging a company, debtholders increasing their required rate of return on debt (cost of debt). The second impact that leveraging the company will have on our model will be reflected in the balance sheet and profit and loss account. As the company is increasing the amount of debt held by it, they will have an increase in the liabilities side of their balance sheet by increasing its financial debt for the amount they decided to raise in order to finance the purchase of the company. Besides the balance sheet, the interest repayment on the profit and loss statement will also increase. The increase will depend on the terms negotiated for the new debt, regarding interests and if it will be amortized or made bullet.

3.4 Results of the model

In this part of the chapter, the results from the case study will be explained and showed to the move on to the conclusions in the next chapter. Before presenting the results, it needs to be clarified that the profitability of either the normal acquisition or the LBO are based on the equity value. As we want to value the return that a potential investor might have over a certain project, we used the equity value as it is the amount that those investors would have had to invest.

First of all, the results obtained by the operating free cashflow will be showed. It should be noted that the operating free cashflow of the company will not change between the different leverage scenarios. This has to do with the fact that when building the operating free cashflow, the financial structure of the company is not taken into account, just the operational side. The effect of the increase in leverage and in the cost of debt will affect the valuation when discounting the free cashflows to present value. Because indirectly in the weighted average cost of capital we will be considering those changes in the financial structure. The operating free cashflow results from the high case scenario are presented in figure 7.

Figure 7. Operating free cashflows: High case scenario

Operating free cash flow (€m)	2019e	2020e	2021e	2022e	2023e	2024e	2025e
EBIT	49.1	66.9	86.3	107.4	130.7	156.3	184.7
Taxes on EBIT	12.3	16.7	21.6	26.9	32.7	39.1	46.2
Tax rate	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0
NOPAT	61.4	83.6	107.8	134.3	163.4	195.4	230.8
Depreciación	13.3	9.8	6.0	1.8	-3.1	-8.8	-15.5
Capex	-31.9	-33.5	-35.2	-37.0	-38.8	-40.7	-42.8
Increase in OWC	-11.2	-2.4	-2.7	-3.0	-3.3	-3.6	-3.9
Operating free cash flow	31.5	57.5	75.9	96.1	118.2	142.3	168.6

Note 1. Figures in Mn€

Source: Own Development

Figure 8. Pre-LBO profitability results

Pre-LBO			
Operating assumptions	Theoretical EV value	Theoretical equity value	IRR
Base case	140.6	604.3	-92%
High case	2,080.0	604.3	93%
Low case	n.m	n.m	n.m

Note 1. Figures in Mn€

Source: Own Development

We will begin to present the results obtained by the pre-LBO model. Based on the historical and the projected values from all the financial statements. These results show how with a base case we set using the numbers given and maintain the assumptions at a reasonable level there is no possible return on equity. As we can see in the results, even in a normal acquisition if the operational side of the company is not improved in some ways, the return is very little and even negative. This is what happens with our base case. Our base case, doesn't generate enough working capital to pay for the operations of Telepizza so in the future if the company doesn't improve operationally it would lead to a loss for the investors. Just by increasing the operational assumptions 2 points from the base case we can see how the return for the investors, expressed through the IRR has very large increase, related to the increase in enterprise value from 140.6 to 2,080. The low case results are not meaningful, because the operational results are negative, thus it wouldn't be meaningful for the study to express the results. All of the results showed in the pre-LBO profitability have been estimated with a cost of debt of 4% and a cost of equity of 10%.

Figure 9. Post-LBO profitability results

Post-LBO Leverage	High case		LBO				Exit	
	Acquisition price	Equity invested	financial debt	Total NFD	Theoretical EV value	Theoretical Equity value	Equity value	IRR
20%	604.3	483.5	120.9	724	2,056.3	483.5	1,043.5	116%
40%	604.3	362.6	241.7	845	2,135.6	362.6	918.8	153%
60%	604.3	241.7	362.6	966	2,046.8	241.7	796.1	229%
80%	604.3	120.9	483.5	1,087	1,912.7	120.9	674.1	458%

Note 1. Figures in Mn€

Source: Own Development

In figure 6 we present the results we have obtained from the post-LBO model. We have made different scenarios depending on the amount of leverage. All the results have been calculated based on the high case scenario. The first thing we can observe by comparing the results post-LBO to the pre-LBO results is that even with a low leverage of 20% the IRR obtained is higher than the pre-LBO case (116% vs. 93%). Besides being higher in all the leverage cases, the post-LBO IRR increase as we increase the amount of debt and reduce the equity that needs to be raised for the acquisition price. This seems logical as the more portion of debt we use, less equity we will be needed. So, this will provide higher returns to investors. For this model we have established a base cost of debt, that as mentioned previously is the risk-free rate and a spread depending on the rating of the company, of 305 basis points. As increasing leverage will undoubtedly increase the cost of debt at the same time, we have been increasing the cost of debt by 200 basis points for every leverage scenario. This has been done to provide a view of how the cost of debt impact, if it does the profitability of the LBO operations. Increasing the cost of debt means that the company will have to pay more for their debt. However, when looking strictly at the IRR of a project or the returns to investors it doesn't have as much impact as we think. In the results we can also observe the difference between the IRR with a 20% leverage and an 80% leverage

It is important to remark that the acquisition of Telepizza may deliver a negative rate of return should the operating results be maintained (see Figure 5). The figures confirm our hypothesis that it is crucial for obtaining positive results from a LBO to improve the operating results, as we already mentioned when we explained our different scenarios.

Chapter 4. Conclusions

To conclude this academic paper, we have reached the conclusion that there are a few takeaways demonstrated both by the academic literature presented in the first part of the paper and reinforced with the results obtained by our own developed model.

First of all, even though on an LBO, the leverage has a lot of impact in the outcome of the investment, operational performance cannot be overlooked. Given the results of the pre-LBO profitability of the acquisition, they showed how even if there was no leverage being raised the return for the investors would not be as high as it could be. This is explained because if the company cannot generate enough operating free cashflow to meet its short-term obligations it will not grow. Making matters worse if a company that doesn't generate a good amount of operating free cash flow increases their debt it would end up in bankruptcy. So, the first takeaway is to highlight the importance of a thorough analysis of the target company in order to maximize the profitable effects of employing an LBO acquisition strategy. A company that is well managed and has a noticeable operational improvement can end up with a higher IRR than an acquisition that has been financed with a higher amount of debt.

Secondly, cost of debt will have a direct impact on the profitability, as companies will be paying more for those "borrowed" resources. However, having a good debt structure and capital structure is just as important as using leverage. As mentioned throughout the academic paper, the LBO acquisitions are not financed solely by one creditor and just one type of debt. Investors have a wide range of tranches which vary in maturity, repayment type, subordination and of course interest rates. On top of all the different debt instruments that can be used we have the capital structure. An optimal capital structure will be key in the success of an LBO. Investors must always keep in mind the maximum debt capacity of the company being purchased and the split between equity and debt that will allow them to obtain the highest returns at the end of the holding period.

Thirdly, the increased IRR that employing an LBO benefits investor is coming majorly from the low amount of equity they are using to purchase the company. When

they acquire a company as they employ a large portion of leverage the equity is reduced. In the long term the large amounts that they end up generating come from that small portion of equity they have used against a larger portion that would have been required to use if the acquisition was not leveraged. By reducing the amount of equity employed, then the required exit price for the acquisition can be lower whilst obtaining larger returns. However, as it has been mentioned the risks of overleveraging a company are always present and the more leveraged the company, the least probable it will be that investors are paid back due to their subordination to debt. Simplified, if a company is highly indebted the creditors will require larger repayments and as equity investors are subordinated the amount of money they will receive will be less, sometimes even none at all.

To finish this academic paper and answering the proposed research topic mentioned on the title, how does cost of debt impact the profitability of an LBO. The conclusion that has been reached is that the cost of debt itself doesn't have a direct impact on the profitability. At a first glance it might seem that having a higher cost of debt means that the profitability will decrease because creditors will be asking for more return on their investment. It might also seem it has an impact of the weighted average cost of capital by decreasing or increasing it. After a thorough research, having a higher or lower cost of debt does not imply the impact will be direct. There are many factors that will be taken into account when analyzing the profitability of an LBO. It is true that cost of debt might lower or increase the total enterprise value of a company by increasing or decreasing the weighted average cost of capital (This change in the weighted average cost of capital will also be dependent on the percentages of debt and equity used for the transaction, and usually the cost of debt doesn't impact that much the weighted average cost of capital). But when we look at the profitability of an LBO, meant as the return equity investors will receive at the end of the holding period considered for this academic paper, the biggest impact on the IRR will be the amount of debt considered. Having fewer equity committed will be translated into a higher gain respectively at exit price. At this point we also have to take into account that in order to maximize the benefits of leverage we would need to keep the return on capital employed above the cost of debt of the company. Otherwise, the company will not be able to survive in the long term or take fully advantage of the tax deductibility benefits. The impact of cost of debt in LBO profitability is related to the exit price. Cost of debt

will impact the enterprise value of the company so when estimating the potential exit price for the organization, the cost of debt will directly be having an effect on it as through the discount rate it has conditioned the total enterprise value for that organization.

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Annexes

Annex 1: P&L account pre-LBO: Base case scenario

€m	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Sales	328.9	339.6	361.0	340.3	354.8	372.5	391.1	410.7	431.2	452.8	475.4
% inc.	-	3.2	6.3	-5.7	4.3	5.0	5.0	5.0	5.0	5.0	5.0
Cost of goods sold	-91.3	-88.6	-100.0	-97.5	-91.0	-103.0	-100.4	-105.4	-110.6	-116.2	-122.0
% inc.	-	-2.9	12.8	-2.5	-6.7	13.2	-2.6	5.0	5.0	5.0	5.0
% sales	-27.7	-26.1	-27.7	-28.7	-25.7	-27.7	-25.7	-25.7	-25.7	-25.7	-25.7
Gross margin	237.6	251.0	261.0	242.8	263.7	269.5	290.8	305.3	320.6	336.6	353.4
% inc.	-	5.6	4.0	-7.0	8.6	2.2	7.9	5.0	5.0	5.0	5.0
% sales	72.3	73.9	72.3	71.3	74.3	72.3	74.3	74.3	74.3	74.3	74.3
Personnel expenses	-91.1	-118.6	-95.2	-94.9	-88.3	-92.7	-97.4	-102.2	-107.4	-112.7	-118.4
% inc.	-	30.2	-19.7	-0.3	-7.0	5.0	5.0	5.0	5.0	5.0	5.0
% sales	-27.7	-34.9	-26.4	-27.9	-24.9	-24.9	-24.9	-24.9	-24.9	-24.9	-24.9
Other expenses	-88.8	-100.7	-99.4	-118.6	-113.0	-107.5	-101.1	-93.9	-85.6	-76.3	-65.9
% inc.	-	13.4	-1.3	19.4	-4.7	-4.9	-5.9	-7.2	-8.8	-10.9	-13.7
% sales	-27.0	-29.7	-27.5	-34.9	-31.9	-28.9	-25.9	-22.9	-19.9	-16.9	-13.9
Other losses and income		0.0	0.0	-8.5							
EBITDA	57.7	31.6	66.4	20.7	62.4	69.2	92.3	109.2	127.6	147.6	169.2
% inc.	-	-45.2	110.1	-68.8	200.8	11.0	33.2	18.4	16.8	15.6	14.7
% sales	17.6	9.3	18.4	6.1	17.6	18.6	23.6	26.6	29.6	32.6	35.6
Depreciation and amortization	-16.6	-17.4	-18.9	-16.5	-13.3	-9.8	-6.0	-1.8	3.1	8.8	15.5
EBIT	41.1	14.3	47.5	4.2	49.1	59.5	86.3	107.4	130.7	156.3	184.7
% inc.	-	-65.3	233.3	-91.1	1,066.0	21.0	45.1	24.5	21.6	19.6	18.1
% sales	12.5	4.2	13.2	1.2	13.9	16.0	22.1	26.2	30.3	34.5	38.8
Financial results	-35.4	-21.8	-9.4	-7.2	-7.2	-7.0	-6.2	-4.5	-2.2	0.9	4.8
% inc.	-	-38.5	-56.9	-23.1							
Other results	-4.0	-0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PBT	1.7	-8.2	38.1	-3.0	41.9	52.4	80.1	102.9	128.5	157.2	189.5
% inc.	-	-591.0	-562.0	-107.9	-1,495.5	25.1					
Taxes	-2.8	19.0	-6.4	-2.5	-10.5	-13.1	-20.0	-25.7	-32.1	-39.3	-47.4
Tax rate (%)	n.m.	n.m.	-16.8	n.m.	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0
Net profit from continuing operations	-1.1	10.7	31.7	-5.5	31.5	39.3	60.1	77.2	96.4	117.9	142.1
% inc.	-	-1,067.2	195.1	-117.4	-671.0	25.1	52.8	28.5	24.9	22.3	20.5
% sales	-0.3	3.2	8.8	-1.6	8.9	10.6	15.4	18.8	22.4	26.0	29.9
Net profit from discontinued operations	0.0	0.0	0.0	-4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit attributable to non-controlling interests	0	0	0.161	-0.668	-0.668	-0.668	-0.668	-0.668	-0.668	-0.668	-0.668
Net attributable profit	-1.1	10.7	31,843	-10,285	30,783	38,661	59,411	76,509	95,713	117,251	141,439
% inc.	-	-1,030.5	197.8	-132.3	-399.3	25.6	53.7	28.8	25.1	22.5	20.6
% sales	-0.3	3.1	8.8	-3.0	8.7	10.4	15.2	18.6	22.2	25.9	29.8

Annex 2: Adjusted balance sheet account pre-LBO: Base case scenario

€m	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Net fixed assets	672.2	681.0	687.9	722.8	729.4	736.2	743.2	750.4	757.8	765.4	773.2
Operating working capital (OWC)	-4.8	-2.9	-1.9	-18.6	-16.6	-16.9	-17.3	-17.6	-18.0	-18.3	-18.7
Other assets	8.8	29.1	26.2	11.1	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Capital employed=Capital invested	676.2	707.3	712.2	715.3	722.5	729.0	735.7	742.5	749.6	756.8	764.2
Shareholders' funds	354.3	607.1	635.2	594.8	597.8	600.8	603.9	607.1	610.5	613.9	617.3
Minorities			0.2	0.8	1.5	2.2	2.8	3.5	4.2	4.8	5.5
Net financial debt	321.9	100.2	76.8	119.6	123.2	126.0	128.9	131.9	134.9	138.1	141.3
Capital employed=Capital invested	676.2	707.3	712.2	715.3	722.5	729.0	735.7	742.5	749.6	756.8	764.2

Annex 3: P&L account pre-LBO: High case scenario

€m	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Sales	328.9	339.6	361.0	340.3	354.8	372.5	391.1	410.7	431.2	452.8	475.4
% inc.	-	3.2	6.3	-5.7	4.3	5.0	5.0	5.0	5.0	5.0	5.0
Cost of goods sold	-91.3	-88.6	-100.0	-97.5	-91.0	-103.0	-100.4	-105.4	-110.6	-116.2	-122.0
% inc.	-	-2.9	12.8	-2.5	-6.7	13.2	-2.6	5.0	5.0	5.0	5.0
% sales	-27.7	-26.1	-27.7	-28.7	-25.7	-27.7	-25.7	-25.7	-25.7	-25.7	-25.7
Gross margin	237.6	251.0	261.0	242.8	263.7	269.5	290.8	305.3	320.6	336.6	353.4
% inc.	-	5.6	4.0	-7.0	8.6	2.2	7.9	5.0	5.0	5.0	5.0
% sales	72.3	73.9	72.3	71.3	74.3	72.3	74.3	74.3	74.3	74.3	74.3
Personnel expenses	-91.1	-118.6	-95.2	-94.9	-88.3	-92.7	-97.4	-102.2	-107.4	-112.7	-118.4
% inc.	-	30.2	-19.7	-0.3	-7.0	5.0	5.0	5.0	5.0	5.0	5.0
% sales	-27.7	-34.9	-26.4	-27.9	-24.9	-24.9	-24.9	-24.9	-24.9	-24.9	-24.9
Other expenses	-88.8	-100.7	-99.4	-118.6	-113.0	-107.5	-101.1	-93.9	-85.6	-76.3	-65.9
% inc.	-	13.4	-1.3	19.4	-4.7	-4.9	-5.9	-7.2	-8.8	-10.9	-13.7
% sales	-27.0	-29.7	-27.5	-34.9	-31.9	-28.9	-25.9	-22.9	-19.9	-16.9	-13.9
Other losses and income		0.0	0.0	-8.5							
EBITDA	57.7	31.6	66.4	20.7	62.4	69.2	92.3	109.2	127.6	147.6	169.2
% inc.	-	-45.2	110.1	-68.8	200.8	11.0	33.2	18.4	16.8	15.6	14.7
% sales	17.6	9.3	18.4	6.1	17.6	18.6	23.6	26.6	29.6	32.6	35.6
Depreciation and amortization	-16.6	-17.4	-18.9	-16.5	-13.3	-9.8	-6.0	-1.8	3.1	8.8	15.5
EBIT	41.1	14.3	47.5	4.2	49.1	59.5	86.3	107.4	130.7	156.3	184.7
% inc.	-	-65.3	233.3	-91.1	1,066.0	21.0	45.1	24.5	21.6	19.6	18.1
% sales	12.5	4.2	13.2	1.2	13.9	16.0	22.1	26.2	30.3	34.5	38.8
Financial results	-35.4	-21.8	-9.4	-7.2	-7.2	-7.0	-6.2	-4.5	-2.2	0.9	4.8
% inc.	-	-38.5	-56.9	-23.1							
Other results	-4.0	-0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PBT	1.7	-8.2	38.1	-3.0	41.9	52.4	80.1	102.9	128.5	157.2	189.5
% inc.	-	-591.0	-562.0	-107.9	-1,495.5	25.1					
Taxes	-2.8	19.0	-6.4	-2.5	-10.5	-13.1	-20.0	-25.7	-32.1	-39.3	-47.4
Tax rate (%)	n.m.	n.m.	-16.8	n.m.	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0
Net profit from continuing operations	-1.1	10.7	31.7	-5.5	31.5	39.3	60.1	77.2	96.4	117.9	142.1
% inc.	-	-1,067.2	195.1	-117.4	-671.0	25.1					
% sales	-0.3	3.2	8.8	-1.6	8.9	10.6					
Net profit from discontinued operations	0.0	0.0	0.0	-4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit attributable to non-controlling interests	0	0	0.161	-0.668	-0.668	-0.668	-0.668	-0.668	-0.668	-0.668	-0.668
Net attributable profit	-1.1	10.7	31,843	-10,285	30,783	38,661	59,411	76,509	95,713	117,51	141,439

Annex 4: Adjusted balance sheet account pre-LBO: High case scenario

€m	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Net fixed assets	672.2	681.0	687.9	722.8	741.5	765.2	794.4	829.6	871.5	921.0	979.3
Operating working capital (OWC)	-4.8	-2.9	-1.9	-18.6	-7.4	-6.2	-2.3	0.7	3.9	7.5	11.5
Other assets	8.8	29.1	26.2	11.1	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Capital employed=Capital invested	676.2	707.3	712.2	715.3	743.8	768.8	801.8	840.0	885.2	938.3	1,000.5
Shareholders' funds	354.3	607.1	635.2	594.8	625.6	664.3	723.7	800.2	895.9	1,013.2	1,154.6
Minorities			0.2	0.8	1.5	2.2	2.8	3.5	4.2	4.8	5.5
Net financial debt	321.9	100.2	76.8	119.6	116.6	102.3	75.3	36.3	-15.0	-79.8	-159.7
Capital employed=Capital invested	676.2	707.3	712.2	715.3	743.8	768.8	801.8	840.0	885.2	938.3	1,000.5

Annex 5: P&L account post-LBO: High case scenario

€m	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Sales	328.9	339.6	361.0	340.3	354.8	372.5	391.1	410.7	431.2	452.8	475.4
% inc.	-	3.2	6.3	-5.7	4.3	5.0	5.0	5.0	5.0	5.0	5.0
Cost of goods sold	-91.3	-88.6	-100.0	-97.5	-91.0	-95.6	-100.4	-105.4	-110.6	-116.2	-122.0
% inc.	-	-2.9	12.8	-2.5	-6.7	5.0	5.0	5.0	5.0	5.0	5.0
% sales	-27.7	-26.1	-27.7	-28.7	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7
Gross margin	237.6	251.0	261.0	242.8	263.7	276.9	290.8	305.3	320.6	336.6	353.4
% inc.	-	5.6	4.0	-7.0	8.6	5.0	5.0	5.0	5.0	5.0	5.0
% sales	72.3	7.9	72.3	71.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3
Personnel expenses	-91.1	-118.6	-95.2	-94.9	-88.3	-92.7	-97.4	-102.2	-107.4	-112.7	-118.4
% inc.	-	30.2	-19.7	-0.3	-7.0	5.0	5.0	5.0	5.0	5.0	5.0
% sales	-27.7	-34.9	-26.4	-27.9	-24.9	-24.9	-24.9	-24.9	-24.9	-24.9	-24.9
Other expenses	-88.8	-100.7	-99.4	-118.6	-113.0	-107.5	-101.1	-93.9	-85.6	-76.3	-65.9
% inc.	-	13.4	-1.3	19.4	-4.7	-4.9	-5.9	-7.2	-8.8	-10.9	-13.7
% sales	-27.0	-29.7	-27.5	-34.9	-31.9	-28.9	-25.9	-22.9	-19.9	-16.9	-13.9
Other losses and income		0.0	0.0	-8.5							
EBITDA	57.7	31.6	66.4	20.7	62.4	76.7	92.3	109.2	127.6	147.6	169.2
% inc.	-	-45.2	110.1	-68.8	200.8	22.9	20.3	18.4	16.8	15.6	14.7
% sales	17.6	9.3	18.4	6.1	17.6	20.6	23.6	26.6	29.6	32.6	35.6
Depreciation and amortization	-16.6	-17.4	-18.9	-16.5	-13.3	-9.8	-6.0	-1.8	3.1	8.8	15.5
EBIT	41.1	14.3	47.5	4.2	49.1	66.9	86.3	107.4	130.7	156.3	184.7
% inc.	-	-65.3	233.3	-91.1	1066.0	36.2	28.9	24.5	21.6	19.6	18.1
% sales	12.5	4.2	13.2	1.2	13.9	18.0	22.1	26.2	30.3	34.5	38.8
Financial results	-35.4	-21.8	-9.4	-7.2	-7.2	-7.1	-6.6	-5.7	-4.6	-3.1	-1.2
% inc.	-	-38.5	-56.9	-23.1							
Other results	-4.0	-0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PBT	1.7	-8.2	38.1	-3.0	41.9	59.8	79.7	101.7	126.1	153.2	183.4
% inc.	-	-591.0	-562.0	-107.9	-1495.5	42.6					
Taxes	-2.8	19.0	-6.4	-2.5	-10.5	-14.9	-19.9	-25.4	-31.5	-38.3	-45.9
Tax rate (%)	n.m.	n.m.	-16.8	n.m.	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0
Net profit from continuing operations	-1.1	10.7	31.7	-5.5	31.5	44.8	59.8	76.3	94.6	114.9	137.6
% inc.	-	-1067.2	195.1	-117.4	-671.0	42.6					
% sales	-0.3	3.2	8.8	-1.6	8.9	12.0					
Net profit from discontinued operations	0.0	0.0	0.0	-4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit attributable to non-controlling interests	0.0	0.0	0.2	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Net attributable profit	-1.1	10.7	31.8	-10.3	30.8	44.2	59.1	75.6	93.9	114.3	136.9

Annex 6: Adjusted balance sheet account post-LBO: High case scenario

(€m)	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Net fixed assets	672	681	688	1,206	1,225	1,249	1,278	1,313	1,355	1,404	1,463
Operating working capital (OWC)	-5	-3	-2	-19	-7	-5	-2	1	4	8	11
Other assets	9	29	26	11	10	10	10	10	10	10	10
Capital employed=Capital invested	676	707	712	1,199	1,227	1,253	1,285	1,323	1,369	1,422	1,484
Shareholders' funds	354	607	635	595	626	670	729	804	896	1,009	1,143
Minorities	0	0	0	1	2	2	3	4	4	5	6
Net financial debt	322	100	77	603	600	581	554	516	468	408	336
Capital employed=Capital invested	676	707	712	1,199	1,227	1,253	1,285	1,323	1,369	1,422	1,484

