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Valuation: determining the value of firms with a practical case study of 'Bimba y Lola'

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ABSTRACT

In this paper I aim to explore the theory behind discounted cash flow and relative valuation. I will explore the concept of risk and all its components, as well as establishing how to determine the variables needed for valuation. I will produce a walk-through process of industry, competitive, and strategy analysis. I shall look into the flaws that might arise with the valuation of private firms, before putting this into practice with a practical example of *Bimba y Lola*.

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INTRODUCTION TO VALUATION

"Thales, so the story goes, because of his poverty was taunted with the uselessness of philosophy; but from his knowledge of astronomy he had observed while it was still winter that there was going to be a large crop of olives, so he raised a small sum of money and paid round deposits for the whole of the olive-presses in Miletus and Chios, which he hired at a low rent as nobody was running him up; and when the season arrived, there was a sudden demand for a number of presses at the same time, and by letting them out on what terms he liked he realized a large sum of money, so proving that it is easy for philosophers to be rich if they choose, but this is not what they care about."

Aristotle, *Politics*, Book I, ff. 1259a[1]

Definition

This quote by Aristole depicts just how far back the importance of finance and investments were in ancient Greece, whilst also highlighting the lack of concern to be rich per se. Perhaps a greater source of wealth was to find the value in items, an idea that has several layers of intricacies. The concept of valuation is, and has been, a key tool for assessing the worth of an asset. Arguably, there are many objects that warrant the motto 'value is in the eye of the beholder', but can this very turn of phrase be applied in the financial context of valuing firms? Perhaps in aesthetic terms the worth of an item with no real performing function, but with an element of attraction, such as a sculpture or any artistic piece, would merit its price being set by whoever is willing to pay for these artefacts. This may be due to the fact that, as non-functional ornaments, they are more readily attributable to a price dependent solely on its level of demand, as there is nothing else to seek bar the element of adornment[2]. Marshall said it best when he concocted the idea that "the real worth of things to a man is not gauged by the price he pays for them." (Marshall, 1890). He goes on to argue that the total worth of an object cannot be derived solely on its "marginal utility", but rather we must take into account a plethora of other factors before determining the value of said item. For this reason, we must be able to implement methods to assess the value of more complex assets, such as firms, real estate property and stocks that are traded publicly on the market.

Historical exempla

There are several causes to the loss of value of a particular asset. These range from market struggles and poor economic health, such as the asset price bubble of Japan towards the end of the 20th century or the most recent "dot-com" bubble, to basic "hacks" that are implemented by companies or individuals in

[1] Translation source: Perseus Digital Library

[2] Within reason: a painting by Monet of which there are no other illustrations up to par would have other determining qualities that would mould its level of worth.

order to increase the worth of a particular asset. Examples of the latter include the failure of the conglomerates in the 1970s, in which power-hungry investors seized the opportunity to grow and expand gargantuan multinationals, with the excuse that these synergies would increase the value of their conjoined corporate segments. A most recent situation of cheating the system in a vain attempt at creating short-term value resulted in the 2007-2008 financial crisis, whereby precisely the opposite to the desired outcome occurred. These fatal occurrences, having had a detrimental impact on the global economy, have led to the implementation of directives such as the Basel regulation and the Banking Union, so as to prevent the same mistakes happening in the future. The thirst for magnifying profits in the short-term through imprudent "hacks" is essentially the root of evil in most of these exempla – a thirst that can be quenched through the deployment of valuation. In order to eliminate the ignorance between increasing the value of an asset in the long-term and striving to accumulate short-term profits, one must take the time and care to value said asset properly and as close to the reality as possible, so as to avoid fatal consequences. Additionally, the ability to take into account the health of an economy and the performance of the market enables the person who is carrying out the valuation to assess the asset with much more accuracy, thereby swerving away from the surreptitious fluctuations in the market and overall economy, lest we should follow the examples of Enron and Abengoa.

Bias and influence

However, in practice, it is virtually impossible to determine the exact worth of such intricate assets. The beauty of asset valuation is that, despite deploying a quantitative model, the ample factors affect both which model to adopt, as well as which inputs to deploy. Firstly, the asset itself fundamentally which method of valuation to implement, depending on whether we are dealing with real estate, a venture capital firm or even a publicly-traded stock. Having established the asset type, we can then go on to assess the scenario and who is carrying out the valuation. With regard to the former, valuation can be applied to a variety of frameworks, ranging from portfolio management to corporate governance or even corporate finance. As with the character executing the valuation process, one must be wary of the exact role that pertains to them prior to discerning the types of bias that the valuation might, inevitably, be exposed to. Despite bearing a fundamentally quantitative model, asset valuation is, for the most part, purely subjective, with several variables being open for debate. This therefore adds an element of personal judgement, which is further amplified when we consider the complexities that comprise both the asset itself as well as those pertaining to the environment surrounding the good in question. As mentioned, the analyst performing the valuation will undoubtedly hold much prejudice towards the asset, whether they are exposed to certain types of information prior to the valuation or if they are subject to incentive. For example, an investor valuing a specific company they intend to acquire will most likely value the firm upwards so as to ensure maximum worth for the asset they are obtaining. Even if we decide to completely rule out the influence of bias, a thought that is fundamentally unconducive to rational valuation, there are still

numerous variables that are open for debate, such as exactly how to estimate real value and evaluating how long it will be until prices are accommodated to this "real" value.

Revisions and amendments

Due to the constant fluctuations in the market and in the economy as a whole, it is absolutely pivotal that valuations be updated and corrected with frequency so as to ensure an estimate that is as close to reality as possible. All assets are affected by various factors, be it the sector in which they operate, the competition they are working against, or the market itself. Thus, asset value will change according to new information acquired and analysts should take special care to acknowledge these alterations to establish a well-grounded valuation. We cannot possibly predict what may or may not happen in future economies, but we can certainly take the past as a lesson to realise that the worth of assets highly-valued at one point in time can plummet in the blink of an eye should a fatal market or widespread economic crisis occur, thereby depleting the value of this asset significantly and having a baleful, possibly domino, effect on other assets.

Proposal

As mentioned, valuation plays a pivotal role in many frameworks. Throughout this paper, I will focus predominantly on the function of valuation in corporate finance, looking closely at methods such as the discounted cash flow valuation and relative valuation. I will then proceed to implement the theories explored to the valuation of a real-life company: *Bimba y Lola*.

Discounted cash flow valuation

Uses of different models

As previously stated, there are three predominant methods of valuing an asset including discounted cash flow valuation and relative valuation. Discounted cash flow, otherwise known as 'intrinsic valuation' deploys the method of discounting the future cash flows of a company to the present time. The next model, relative valuation, deploys multiples to assess the value of an asset. This technique takes into account the relation between similar assets and variables such as earnings or book value.

The ways in which each of these models are implemented is absolutely crucial to the process of determining the end value. It is particularly noteworthy that the general biases and assumptions we make inevitably lead to a particular selection of the values we will then input into the models. Despite the variations values will make depending on different biases, it is essential that we maintain consistency in our valuation, so as to ensure that, even through assumptions, we can gauge the same values from one alternative to another.

Although it is possible to obtain consistently equal values within the same frame of work, despite employing differently-grounded variables, it is very likely that different models will produce a diverse range of results. For this reason, we must take into special consideration not only the precise purpose of carrying out the valuation process[3], but also the characteristics of the asset itself, as the latter in particular will enable us to apply a suitable frame of calculation that ought to deliver the most accurate outcomes.

There are several reasons why one might choose to utilise one model over another. In this section, I will aim to explore why these models might produce different outcomes, when we might be vulnerable to errors in the calculation, where these models fit in the grand scheme of things before finally offering some suggestions as to how to choose the right model for a particular purpose.

Discounted cash flow valuation

Discounted cash flow valuation is sometimes referred to as *intrinsic valuation.* This other nomenclature encompasses the fundamental essence of this model: to derive the value of an asset using precise and accurate variables and rejecting any bias. Undoubtedly, more often than not, it will be a painstaking toil to seek out error-free variables and, at times, a virtually impossible task to undertake. The main reason for this is simple: market make mistakes. Although we are unable to correct this to suit our valuations, we must simply endeavour to opt for the most accurate results possible and be wary that market prices are prone to stray from intrinsic value.

Calculation

The concept of discounted cash flow valuation is mainly rooted in the notion of bringing all future expected cash flows of an asset to its present value, which can be gauged using the following formula:

$$Present\ value = \sum_{t=1}^{t=n} \frac{CF_t}{(1+r)^t}$$

where n is the lifespan of the asset, CF_t is the cash flow in time t, and r is the discount rate.

As mentioned, each analyst will plump for a figure that suits their liking, for each of the variables that provide scope for subjective judgement. The equation for the present value of an asset is a perfect example of this: the lifespan of the asset is an objective variable, whilst the cash flow of the asset can

[3] Including the natural bias the analyst might use in order to produce results that will suit his or her liking.

vary but only depending on the particular asset we are valuing[4]. Interestingly, though, the discount rate gives much more room for manoeuvre. This figure ought to represent the level of risk incorporated in the asset, with higher amounts equating great risk and lower levels correlating with safe assets. However, the risk variable is completely open to interpretation. We may have a spectrum ranging from default-free zero coupon bonds (with little to no risk as a cash flow is assumed to be generated with these bonds) to the tremendously precarious equities, whose great level of doubt regarding future cash flows ought to be reflected in a high discount rate.

The general process for the overall DCF valuation is a four-step process:

1. Calculate the free cash flow (either to the firm or to equity or both)
2. Calculate the discount rate
3. Calculate the terminal value
4. Calculate the enterprise value.

Free cash flow

The free cash flow is essentially cash flow generated by operations minus the cash invested in the first place to get the operations running. This result would then represent the cash flow that is left over, having funded the fixed assets and working capital. Penman (2010) states that the free cash flow allows us to gauge how well the firm is able to settle its debt and equity payments. Taking all of this into account, it is safe to say that the free cash flow measures the firm's ability to generate profits, even taking debt and equity claims into account. To approximate the free cash flow, we must establish whether we wish to value the equity component of the firm, meaning the free cash flow to equity would be calculated, or to value the firm as a whole, in which case free cash flow to the firm would be computed.

To determine the free cash flow to equity, we would take the net income and add to it depreciation, change in working capital, CAPEX, and the net borrowings. Once we have this cash flow to equity, we would use the following formula to gauge the present value of the free cash flow to equity:

$$Value\ of\ equity = \sum_{t=1}^{t=n} \frac{CF\ to\ equity_t}{(1+k_e)^t}$$

where n is the lifespan of the asset, $CF\ to\ equity_t$ is the expected cash flow to equity in time t, and k_e is the cost of equity.

In order to compute the free cash flow to the firm, we must start off with a slightly different free cash flow. We begin by taking the EBIT and multiplying

[4] Stocks use dividends whilst bonds apply coupons and face value, and real projects assess after-tax cash flows.

this by 1 minus the tax rate. Then, we add depreciation, CAPEX and *subtract* net change in working capital. This is so as to account for all components of the firm, not simply debt, and to gauge a broader picture of the company's performance as a whole. The discount rate we then apply to the cash flow to the firm is the weighted average cost of capital, or the WACC. This rate equates the cost of financing deployed by the firm and weighted by their fractions with respect to market value. Using the formula given below, we are able to determine the present value of the entire firm, including both equity and debt.

$$Value\ of\ firm = \sum_{t=1}^{t=n} \frac{CF\ to\ firm_t}{(1+WACC)^t}$$

where n is the lifespan of the asset, $CF\ to\ firm_t$ is the expected cash flow to firm in time t, and $WACC$ is the weighted average cost of capital.

As touched upon previously, some of these approaches will have variations with respect to the inputs that are implemented in the calculation. However, these two particular procedures, despite using different variables, should generate the same outcome as long as assumptions are kept either away from the method or consistent throughout the process. Additionally, both forms of calculation embody the concept of financing assets either through equity (as with equity valuation) or through debt (as regards firm valuation).

Discount rate

Depending on which model we use, we can either discount at the cost of equity or at the cost of capital. However, as we will see later, the cost of capital demands both the cost of equity and the cost of debt as two of its main components in its calculation, as so let us determine how to approximate all three measures.

Beginning with the WACC, or cost of capital, this is the discount rate used for the free cash flow to the firm. Besides this use, as Brealey and Myers (2010) state, the WACC itself allows us to suss out the expected rate of return when investing in a particular company instead of other, just as risky, firms. The WACC is computed in the following manner,

$$WACC = \left[k_d \times (1-t) \times \left(\frac{D}{D+E}\right)\right] + \left[k_e \times \left(\frac{E}{D+E}\right)\right]$$

where k_d is the cost of debt, k_e is the cost of equity, t is the tax rate, D is the total debt, and E is the total equity. Given that a firm has three sources of funding provided by equity, debt and preferred stock, the cost of capital is defined as encompassing all these costs with their corresponding fixed weighted average. These weighted averages ought to reflect the proportions of each in the market, as these would give a clear idea as to the way in which the firm is utilising its funds. However, the WACC tends to disregard preferred stock, and for this

reason we must only compute the costs of, and corresponding weightings to, debt and equity.

The cost of equity is defined by Damodaran (2001) as the expected return and equity risk premium for equity investors. Thus, we can equate the expected return of the CAPM, which we shall explore later, to generate the value for the cost of equity:

$$k_e = r_f + \beta(MRP)$$

Total cash flow vs excess cash flow

It is debatable which form of cash flow truly reflects the amount of profits made. For this reason, we are able to choose between implementing the entire cash flow, which would imply that all earnings create value, or just the excess cash flow, thereby making the assumption that it is only the earnings that are left over as a surplus that actually generate value. To use the excess cash flow model, we could have to firstly calculate the excess return by multiplying the cost of capital by the amount of capital invested, before subtracting this to the total cash flow earned. This would give us the excess return, which we should then add to the original investment made in the asset to acquire the value of the asset under the excess cash flow model.

Advantages and disadvantages of DCF valuation

As DCF valuation is grounded on the foundation of being able to discount future cash flows at a specific rate, we must i) have positive cash flows to discount and ii) have a discount rate that accurately reflects the level of risk involved. In the event that we are lacking in one or both of these conditions, the process of DCF valuation is made much more toilsome, and much more necessary for the asset involved. A clear example of this would be a distressed company, as its negative cash flows render the valuation a task of improvisation whereby the analyst is forced to estimate cash flows until they should turn positive. A similar case is that of valuing a firm undergoing restructuring. The cash flows during the restructuration process are heavily altered, as the firm undergoes changes in management and the general structure of the company. For this reason, we must be especially prudent and not give in to the temptation of inputting historical values, which will inevitably produce a distorted reflection of the company. Thus, special consideration must take place when carefully adjusting cash flows and the discount rate to portray an accurate picture of the status of the company.

A very interesting scenario is that of private companies. In order to determine the level of risk attached to the company, analysts take into account the beta of the firm in their calculations. Private firms do not have said 'beta', as this is a characteristic that solely pertains to publicly-traded companies. To combat this, we may either delve into a number of assumptions as regards the

characteristics of the investors in the firms, as we do not have public access to this knowledge, or we can also use comparable firms and their ratios to liken the private firm in terms of sales, EBITDA or book value. Alternatively, for a long-standing company, we can compare vertically, as opposed to horizontally with other comparable firms. This entails looking back at the historical figures of the firm, but again we run risks in terms of assuming that past periods were performing under a similar economic situation to the one we have today – an assumption that, perhaps, we may not be able to afford to make if we seek a true valuation.

Risk

As mentioned, valuations require an accurate reflection of the risk involved in the cash flows through the use of discount rates. More specifically, we must strive to attain the appropriate cost of debt that encompasses the default spread for the risk of default in the debt, as well as the cost of equity, comprising a risk premium for the equity risk.

It is a common mistake to interpret 'risk' merely as the chance of losing out on an appropriate return relative to the investment we make. Instead, risk actually encapsulates both sides of the spectrum: the probability of making less returns than those hoped for as well as the likelihood of making more returns than expected. In essence, the amount of 'risk' that is assumed will ultimately affect the expected returns we ultimately make. Despite the simplicity of this, layers of complexity are added the moment we attempt to decide which point of view to adopt when measuring the amount of risk involved. Two examples include the managers of a firm and the stockholders: the risks of the former are likely to cover elements such as human capital or their own wealth – a very delicate situation, particularly if the manager has chosen to put in great amounts of both capital – whilst the risks of the latter are most probably those that might affect the level of return they acquire through equity. In the process of valuation, however, it would make sense to adopt the perspective of he or she who will actually price the asset, or firm, and should thus include those who set the stock prices, i.e. marginal investors.

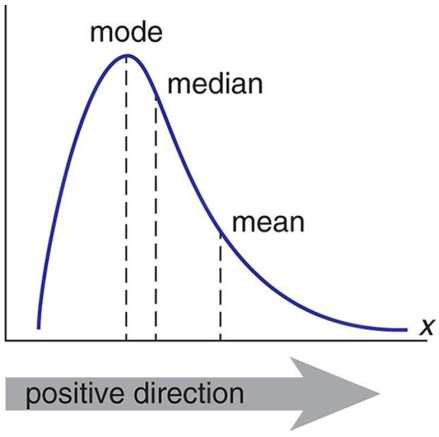
Before beginning to determine such variables, it is important to define risk in statistical terms. When buying assets, investors are putting in money in the hope that they will receive something in return, namely an 'expected return'. This is measured by the total sum of the products between the weight on an asset and the probable return it is expected to make, as depicted in the formula below:

$$E(r) = \sum_{i=1}^{n} w1r1$$

It must be stated, however, that although expected returns are able to give us a clear forecast as to the profit the asset might bring about, it is in no way a true representation of the actual returns the investor will make on the asset. Unless we are dealing with a risk-free asset, such as a 12-month Treasury bill whereby the actual returns are exactly equal to the expected returns, it is highly improbable that our estimation of returns will equate to the actual returns we make. In any case, the difference between both of these measures of returns will enable us to calculate the risk involved.

In statistical terms, variance measures the dispersion between a set of data relative to the mean. As standard deviation is the square root of variance, we can attribute the standard deviation both to the spread between the data and its mean and to the concept of volatility and risk. In order to derive the actual returns an investor will make on an asset, the first course of action would be to analyse the spread around the expected return: the greater the variance, the greater the deviation of the actual returns away from the expected returns. Next, we are to look at the skewness of the distribution. Skewness measures how symmetric, or asymmetric, a distribution is. Positive and negative skew would depend entirely on the positioning on the mean, median and mode along the distribution. If we are to focus on unimodal densities, a mean that is smaller than the median and a median that is smaller than the mode would be classified as a positive skew (as pictured in Figure 2.1). The final step would be to look at the tails, measured by kurtosis. Kurtosis looks at how fat or thin the tails of the distribution are compared to the normal distribution that has a kurtosis of zero. The fatter the tails in the distributions relative to the normal will have a positive kurtosis (leptokurtosis). This means that the distribution of returns will have a significantly high concentration of mass in outlier events (the extremes of the tails), thereby indicating that outlier events are likely to occur. On the other hand, should the distribution comprise thinner tails relative to the normal, this would indicate negative kurtosis (platykurtosis), which would therefore mean that outlier events are less likely to be brought about, as the distribution of returns encompasses less concentration in the outliers.

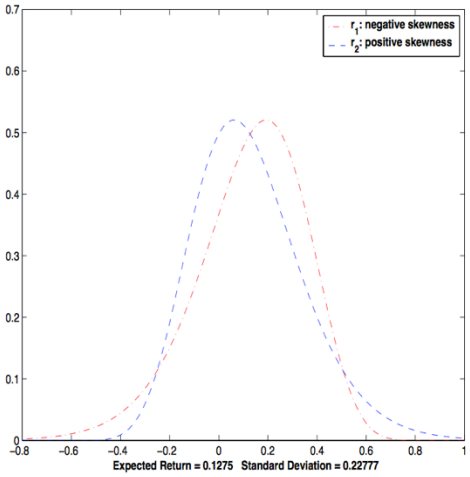
Figure 1



(Source: LSE, 2016)

Following this theory, we can then deduce which type of skewness and kurtosis to opt for depending on the risk-appetite the investor is willing to take on. For a risk-averse investor, it would make sense to plump for positive skewness, as positive outliers would be more appealing than negative outliers. As depicted in the graph before (Figure 2.2), the return distributions r_1 and r_2, have the same mean and standard deviation so that $E[r_1] = E[r_2]$ and $\sigma[r_1] = \sigma[r_2]$. In the graph, r_1 is visibly negatively skewed, with a higher percentage of positive returns. However, it is important to note that will small probability comes a large amount of negative returns. On the other hand, r_2 is positively skewed, as its high percentage of higher returns would lead us to believe so. Additionally, though, as before, will very small probability comes large positive returns. For these returns, it would appear that the preferred skew would be that or r_2.

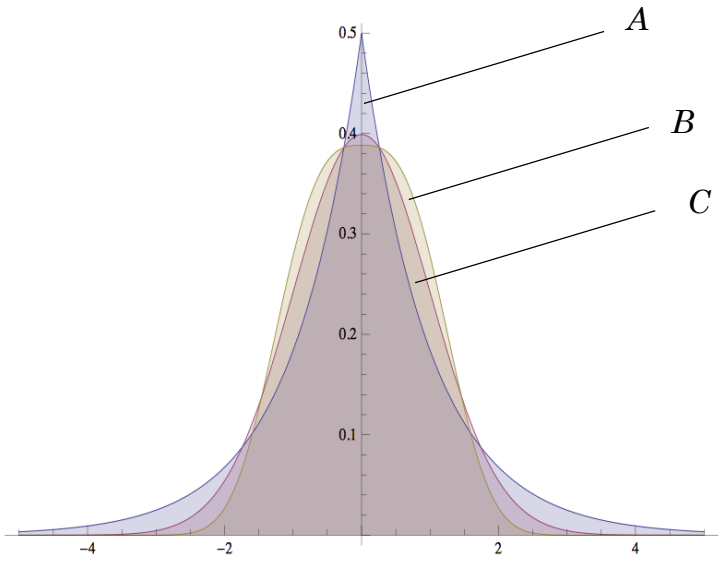
Figure 2



(Source: LSE, 2016)

With regards to kurtosis, the figure below (Figure 2.3) indicates three different distributions, all with the same mean and standard deviation but with very different kurtosis. *A* clearly has fatter tails than those of *B* or *C*, which would signify greater kurtosis. This means that there is a greater tendency for the price of *A*'s distribution investment to jump in either direction, compared to the red and green distribution's investment, whose thinner tails would imply a less probably chance of price jumps. Despite the possibility of losing out greatly on returns, it would be a wise choice to opt for distributions similar to those in *A*, as will greater jumps in price comes the possibility of earning a great return.

Figure 3



(Source: LSE, 2016)

As a summary, it is worth emphasising that the expected returns and variances used to calculate risk are, most often than not, determined through historical value rather than future values. By doing so, we are assuming that historical performance is a rather good reflection on that of the future. However, if the asset were to grow surreptitiously or change its traditional course of growth throughout time, this is when we must abandon the assumption that historical values are good measures of future performance.

Diversifiable and non-diversifiable risk

An investor has the possibility to invest his or her entire portfolio into a single asset. However, as we mentioned before, several risks can be incurred if we choose to opt for this level of asset concentration, namely those that are firm-specific or relating to the market. However, by diversifying the portfolio, the investor would be able to reduce the firm-specific risk significantly. This is due to the fact that with an increase in assets comes less relative exposure in each asset, and so if there were to be significant competitive risk in a bid for another firm, ceteris paribus, this would only affect the assets in question, thereby rendering the other assets in the portfolio free of this specific type of risk. Being exposed to such a high degree would mean that a light drop might incur huge losses, even if a small rise might give way to great returns. Additionally, diversification offers the possibility of negative returns cancelling out with positive ones: if an asset in your portfolio has fallen victim to a sharp drop, it may be that another asset that is actually doing well, meaning there is a reduction in risk because the two assets are offsetting each other – in other words, one asset is a hedge for the other, thereby rendering the overall portfolio less risky. Despite the advantageous effect of eliminating, or else decreasing substantially the impact of firm-specific risk, portfolio diversification will

struggle to lessen the influence of market risk, as this is persistent throughout most portfolios, regardless of the number of assets within.

The concept of diversification augmenting the returns on an asset can be explained with statistics. Suppose Portfolio Z is composed of two assets, X and Y. The return on the portfolio would be measured by the sum of the product between the weight and the mean return, whilst the variance of the portfolio is determined with additional variables such as the covariance between the two assets:

$$\mu_Z = w_X\mu_X + (1 - w_X)\mu_Y$$
$$\sigma^2{}_Z = w^2{}_X\sigma^2{}_X + (1 - w_X)^2\sigma^2{}_Y + 2w_X(1 - w_X)\rho_{XY}\sigma_X\sigma_Y$$

In the equation for the variance of the portfolio, ρ_{XY} symbolises the correlation in returns between assets X and Y – in other words, it determines whether or not the two assets and moving together in the same direction, and to which extent. The greater the figure for ρ_{XY}, the greater the result for $\sigma^2{}_Z$ and, since the latter represents the systematic risk of the portfolio, greater risk is likely to reduce returns. Thus, the more correlation there is between assets (or the less diversification present), the less likely it will be for the investor to reap rewards. However, the level of benefits is predominantly dependent on the correlation coefficient, such that if this ρ_{XY} should be equal to 1, portfolio returns would be null.

There exists the possibility that both risk and return models mentioned previously (namely those of measuring the risk arising from the distribution of actual returns relative to the expected return, and that brought about in a diversified portfolio) would be rendered insufficient. If we were to measure a non-diversified or market risk, we would have to deploy different models to strive for accurate results. Perhaps the most commonly deployed model for the calculation of market risk is that of the capital asset pricing model (CAPM), though several multifactor models, such as the Fama-French model, have arisen in the last few decades to rival the accuracy of the popularised CAPM.

CAPM

In a world where the CAPM holds true, indicating that market portfolios are held, the risk incorporated into a particular asset would be that added to the one this asset attaches to the market portfolio. In order to measure the market risk of a single asset, it is important to note how correlated this asset is with the market portfolio. To elucidate this point, suppose we have an asset that has practically no correlation with the market portfolio: this would mean that market risk would be virtually null, and the firm-specific risk it would bear instead can be swept away through diversification. However, if we were to have an asset that moves in tandem with the activity of the market, it would be safe to assume that market risk would be prominent here. Thus, we would determine how much market risk is present by calculating the covariance of the asset with the market, as portrayed in the equation below:

$$\sigma_{AM} = \rho_{AM}\sigma_A\sigma_M$$

where ρ_{AM} is the correlation in returns between the asset and the market, σ_A is the standard deviation of the asset and σ_M is the standard deviation of the market.

Now suppose we lived in a world in which all investors had a portfolio containing just two assets: the risk-free asset and the market portfolio. In this world, the risk of any single asset would be, as before, the risk it contributes to the market portfolio. And so, to deduce this risk, we would calculate the variance of the market portfolio, ${\sigma^2}_M$, as follows:

$${\sigma^2}_M = {w^2}_A{\sigma^2}_A + (1 - w_A)^2{\sigma^2}_M + 2w_A(1 - w_A)\sigma_{AM}$$

where w_A is the weight of the market value portfolio on the asset A, ${\sigma^2}_A$ is the variance of the asset A, and σ_{AM} is the covariance between the returns of asset A and those of the market portfolio. Given that the weight of asset A, w_A, would have to be infinitely small when compared to the gargantuan amount of assets available in the market, we can safely say that ${w^2}_A{\sigma^2}_A$ would tend towards zero. Following this line of reasoning, $(1 - w_A)^2{\sigma^2}_M$ would therefore have to be somewhat equal to ${\sigma^2}_M$. Finally, this leaves us with the term $2w_A(1 - w_A)\sigma_{AM}$, in which the weight of the asset A, w_A, is minute and so the risk of the asset A depends predominantly on the covariance σ_{AM}.

It's all well and good to be able to calculate this risk with relative ease, but once we obtain this quantifiable figure for risk how are we then to interpret this amount? The key to solving this is to simply standardise the figure for risk by dividing the covariance of asset A with the market portfolio, in this example, by the variance of the market portfolio itself, such that we would obtain the beta of the asset - in order words, the actual measure of risk of the asset:

$$\beta_A = \frac{\sigma_{AM}}{{\sigma^2}_M}$$

This beta enables us to accurately compare and contrast riskiness between assets and with the market beta itself, as we know that the covariance of the market with itself, σ_{MM}, is equal to its variance, ${\sigma^2}_M$, thereby generating a market beta of 1. We can therefore use the market beta as a benchmark to gauge that any asset beta greater than 1 means it bears greater risk than the market, and any asset beta smaller than 1 would indicate 'safeness', whilst a beta of zero belongs to risk-free assets.

Keeping in mind that all investors carry some mass of both risk-free assets and the market portfolio, we can therefore establish that the expected return generated by a particular asset is associated with its beta, as exemplified through the CAPM model:

$$E(R) = r_f + \beta_M(MRP)$$

where r_f = risk-free return (such as a US Treasuring bill), β_M = beta of the market portfolio, and MRP = market risk premium (also known as the return of the market minus the risk-free return). Put into plain words, the CAPM determines how much extra return can be made if more risk is assumed. The variables in this equation give us a clear idea of exactly when the CAPM would be most appropriately used. The market risk premium implies an element of enticement: investors who are risk-averse are expected to be compensated with higher returns for participating in a risky gamble, and this compensation takes the form of the market risk premium. If the MRP is greater than zero, then the return of the market is greater than the risk-free return, meaning greater risk would pave the way for higher returns. There are a few more assumptions that must be made when adopting the CAPM:

1. The model used is static (i.e. it has the same investment horizon)
2. The returns are all rational
3. There is a clear preference towards the mean and the variance
4. We are dealing with frictionless markets, in which there are no trading costs
5. It is possible to purchase a small portion of an asset
6. All assets are traded
7. The portfolio is a well-diversified one.

This last point is absolutely crucial, and ties in well with the notion of covariance. The covariance of a stock is a key tool to determine the level of risk and return involved. If there is low covariance, high diversification is present, meaning the investor is willing to accept lower returns. However, should there be high covariance with the market, the stock becomes riskier and so high returns are likely to be brought about. For this reason, it is important to stress that what matters is not *how* volatile an asset is, but *when* it becomes volatile, as this will enable us to reap large returns at specific points in time.

And so, the CAPM allows us to measure all the risk through just a single beta calculated with respect to the portfolio of the market. It is important to note, however, that with this model we are dealing specifically with systematic risk, the β. Whereas β is responsible for delivering 'passive' returns, another variable, α, exploits markets inefficiency and delivers returns over and above what the β provides. Whilst β drivers reflect the financial market premiums in the sense of efficiency, α drivers reflect excess returns, regardless of the benchmarks imposed. These α drivers include absolute return (independent of market movements), market segmentation (deselecting certain asset classes), portfolio concentration (picking the 'winners', as opposed to diversifying), and having non-linear distributions (option-like payoffs). Contrary to these, the β drivers take on the form of passive equity, enhanced indexed equity, Treasury bonds, investment grade bonds, and mortgage-backed securities. These types of funds exhibit less active return, but also less active risk. Active risk is determined by the standard deviation of excess returns, similar to the theory

given previously on measuring the risk of diversified portfolios. Perhaps this can be better explained by the equation for excess return on an asset:

$$r_t - r_{f,t} = \alpha + \beta(r_{m,t} - r_{f,t})$$

where $r_t - r_{f,t}$ represents the excess return and $\beta(r_{m,t} - r_{f,t})$ is a measure for the exposure of the asset.

However, as noted, the CAPM model assumes that the investor holds a well-diversified portfolio. So, what options are available when a portfolio isn't significantly diversified? The most appropriate models to assume would be those categorised as Multi-Factor models, in which the Fama-French free factor model would be a wise choice of model. This model attempts to explain why some stock systematically make higher returns than others, whereas the CAPM model simply states when stocks have higher returns than others.

Risk-free rate and risk premiums

A pivotal variable in risk and return models is that of the risk-free rate, and in order to arrive at a suitable risk-free rate we must take a couple of things into account. Firstly, in order for an asset to be labelled 'risk-free', the expected returns must equate the actual returns, as there would be no risk with which to create a difference between the two returns. Secondly, the asset must not bear any risk of default. Bearing this in mind, we have immediately ruled out virtually all securities except government securities, as governments are responsible for printing the money of their country and so have relatively high control over their own safety nets as regards risk of default[5]. Thirdly, so as to ensure with confidence an expected return that is equal to the actual return, reinvestment risk must be null. This is due to the fact that whilst Treasury bills are regarded as 'default risk free', we are unable to pinpoint that exact rate of the Treasury bill at a future date, and so the possible fluctuation in rate might bring about the risk of deriving an inaccurate figure for the risk-free rate.

In the event that we actually have a default-free institution, the calculation for the risk-free rate becomes much more manageable. Let us assume that most economically-developed countries have a government that is 'default-free': if we are to contemplate the risk-free rate on a long-term valuation, this rate should equate that of the long-term government bond. Equally, should we be dealing with a short-term valuation, the risk-free rate can be assumed to be the same as the rate of the short-term government security.

However, suppose we are operating in a country with a not-so-ideal economic environment, in which there is volatile inflation with the tendency to

[5] This statement, however, becomes less valid if we have a government that borrows from currencies other than their own.

be quite elevated: in this case, the valuation would be conducted with real growth rates and a real risk-free rate, thereby rejecting any growth and variances that would arise from price inflation. In order to arrive at this real risk-free rate, we would have to take the expected inflation rate away from the nominal interest rate. However, few countries are in the fortunate position of being able to trade default-free securities so as to calculate real risk-free rates. For this reason, we must ensure that, in order to deduce the real risk-free rate in these countries, the expected real return on the economy we are dealing with is the same as the expected real growth rate in that same economy.

As noted earlier in this discussion, it is normal for risk-averse investors to be offered some sort of compensation, in the form of a premium, for taking on more risk. This then led us to establish that the CAPM is adequate for calculated expected return on equity, as the addition of a risk-free rate to the product of a beta (representing the market risk of the asset in question) and the market risk premium will give us an adequate estimate of the return the investor should expect to make. In this section, I will focus on how to calculate the market risk premium, before moving onto an estimation of the beta.

Market risk premium

The market risk premium is one of the most important components of a valuation. Not only does it reflect the general economic environment of a particular country, but it also enables us to determine the cost of capital of a firm, create shareholder value, and accurately assessing firms so as to prevents under-investments or missed investment opportunities. Its importance is further emphasised by the difficulties that are posed when attempting to gauge a specific figure to reflect accurately the market risk premium. Perhaps this is due to the wholly subjective outlook of the CAPM, in which the market risk premium is implemented, and its tendency to be adjoined to much judgement and personal bias.

According to Damodaran (2012), the usual practice of deriving the risk premium is by gathering historical premiums gained by stocks over default-free securities in a long time-frame. To calculate this historical premium, we would take the mean actual returns earned on stocks and subtract from them the mean returns on government debt. The reason why this seems to be the most popular method to calculate the risk premium is due to the fact that, if trustworthy long-term values for equity returns are available, it will seemingly generate a result that is virtually pure and free of bias (Equity Asset Valuation). However, this seems rather dubious if we take into account the sheer diversity of input selection we have at our disposal when proceeding with the estimation. These namely include the equity index to symbolise equity market returns, the time span to generate the estimated value, the kind of mean deployed, and the proxy for the risk-free return.

Beginning with the choice of equity index, the most commonly ones opted for are indices with an expansive foundation and that are weighed against

market value. Regarding the time span, Pinto (2004) argues that to ensure greater accuracy we can increase the timeframe of the data set, rather than dividing the periods into smaller phases which will arguably not make a difference with respect to precision. Hence, we ought to choose a returns series running for the longest amount of time whilst generating trustworthy results. Moving on to the averaging method to use, we have a choice between the arithmetic mean and the geometric mean; the former is the sum of the differences between annual returns divided by the number of observations, whilst the latter calculates the compound annual excess equity returns divided by the risk-free return. This choice would depend wholly on the time span we have: if we have a short timeframe, the clear preference would be the arithmetic mean return, as this will deliver the expected return at any specified point in time, whereas the geometric mean would be likely to compute a return result of 0 given its incompatibility with brief time spans. On the other hand, if we were to contemplate returns over a longer course of time, the geometric mean would deliver more accurate figures to reflect a smoothed out volatility that is likely to occur throughout a long period of time. Finally, the risk-free rate can be one of two options: either the return on a short-term government debt instrument (such as a Treasury bill) or the return on a long-term government bond. Again, the preference would depend on the time frame we are concerned with. A risk premium based on a Treasury bill rate is likely to generate a better-suited result when discounting a future twelve-month cash flow. However, if we are dealing with a valuation of several periods, it may be wiser to opt for a premium associated with long-term government bonds, as this ought to generate a more appropriate discount rate.

Having said this, Bowman (2001) argues that the market risk premium should be perceived as being a "forward-looking rate", given that the CAPM is a model that looks into future expectations. He states that it is because of the market volatility and the erratic flows of stock prices that we are unable to trust historical premiums to predict those of the future. Reflecting on this notion more closely, it makes perfect sense: it seems almost nonsensical to assume that a period of the past, even if it is a 50 year-long period, could possibly mirror future premium predictions as the economic environment would have been completely different, and so the foundations on which these premiums exist would not be able to truly estimate those of the future. Another suggestion that is put forward is that we take the market risk premium of a specific country as being the same as that of a comparable country, hereafter referred to as a benchmark. Thus, we would add this benchmark to any risks that might arise in the stock market to gauge an accurate measure of the market risk premium. A good benchmark to use for the more economically-developed countries would be the US, as not only does it bear a large and hugely diversified market, but the US risk premium would most likely encompass the majority of ranges of risk premiums of other countries as it freely allows the flow of capital from a plethora of economically-developed countries.

Estimating risk parameters and costs of financing

We have already discussed how to tackle the risk-free rate and the market risk premium. Now we must decide how to approach the estimation of the beta. The beta of an investment, specifically in the realm of the CAPM, is essentially the risk that is added to a portfolio when we include a new asset. As with the majority of these unknown variables, we have a couple of ways in which to calculate the beta: either by using historical market betas or by estimating the fundamental beta.

If we were to adopt the first method of using past market betas, we would start off by computing a regression of stock returns (R_s) against the market returns (R_m), such as the S&P 500. To do so, we can use the following equation

$$R_s = a + b(R_m)$$

where a is the regression intercept and b is the slope of the regression, otherwise recognised as the covariance of the stock returns with the market returns, $\frac{(R_s,R_m)}{\sigma^2{}_m}$. This slope can be paralleled with the β of the stock from the equation for the cost of equity, and therefore evaluates the level of risk incorporated in the stock. Meanwhile, the intercept can reflect the achievement of a stock throughout the regression period, if we compare the returns with the expected returns from the CAPM. Given that the CAPM model can be written as follows:

$$R_s = r_f(1-\beta) + \beta(R_m)$$

we can then align it with the regression equation provided earlier to acknowledge that a can be compared to $r_f(1-\beta)$ to measure the stock's achievement. Thus, the following conditionals can be drawn:

If $a < r_f(1-\beta)$, the stock surpassed expectations during the regression period.

If $a = r_f(1-\beta)$, the stock performed as expected during the regression period.

If $a > r_f(1-\beta)$, the stock underperformed relative to expectations during the regression period.

Perhaps the most crucial assumption of the CAPM that we ought to make note of is that the investors are risk-averse and make their investment decisions based on the mean return and variance of returns of their total portfolio (Pinto et al. 2015). The main idea behind the CAPM is that the risk of an asset is determined solely according to the amount of systematic risk (risk that cannot be shed by portfolio diversification) gives rise to. The objectivity beneath the results produced by the CAPM might explain why it is usually implemented in the valuation process.

Another method we could implement is that of the fundamental beta. This can be done by ascertaining three variables: i) the kind of business(es) the firm belongs to, ii) the degree of operating leverage borne by the firm, and iii) the financial leverage that corresponds to the firm.

Kind of business

As we established previously, the betas measure the level of risk with respect to a stock index. We can therefore gather that the more responsive a particular line of business is to the market, the higher the risk relative to the stock and so the greater the beta. Hence, a firm that belongs to the steel industry or whose business operated in the travel industry would be more prone to reacting to fluctuations in the market that a firm involved in the utilities or tobacco industry, as these last two generate products that are demanded irrespective of stock volatility. In other words, if a consumer finds that he or she has the choice of purchasing a particular product now or later, the product he or she feels required to acquire now (most likely produced by a non-cyclical firm) has a lower beta than the one whose purchase can be deferred to a later date (probably supplied by a cyclical firm).

Degree of operating leverage

The operating leverage of a firm measures the relationship between fixed costs and total costs. If the fixed costs of a firm should be greater than the total costs, this is thought to produce a high degree of operating leverage. Usually, a high degree of operating leverage brings about a high level of variance in operating income compared to a firm with a low degree of operating leverage. Thus, *ceteris paribus*, a high level of variance in operating income insinuates a certain degree of risk, thereby causing the beta of the firm to increase. However, it is important to note that most income statements combine fixed and variable costs together, thereby rendering it quite difficult to calculate the operating leverage. As a solution, though, it is possible to gauge an estimate of this operating leverage by calculating the ratio between the percentage change in operating profit and the percentage change in sales, as portrayed below:

$$Degree\ of\ operating\ leverage = \frac{\Delta\ operating\ profit\ \%}{\Delta\ sales\ \%}$$

Degree of financial leverage

With higher leverage comes more variance in net income, thereby rendering the stock investments in the firm riskier. If we assume that the stockholders bear all the firm's risk (in other words, the beta of debt is equal to zero), and debt generates a tax benefit to the firm, then we can say that,

$$\beta_L = \beta_u \left[\frac{1 + (1 - t)}{\left({}^{D}/_{E}\right)}\right]$$

where β_L is the levered beta for equity[6], β_u is the unlevered beta of the firm[7], t is the marginal tax rate, and D/E is the market value or the debt-to-equity ratio. Given that the leverage is estimated by this market ratio, we can say that the greater the leverage, the more market risk is borne by the firm, thereby generating higher betas.

Thus, we know have all the variables needed to calculate the cost of equity through the CAPM model. But how do we interpret these figures, once they have been calculated? If we are to adopt the point of view of an equity investor, this cost of equity would provide us with the appropriate rate compensation for the level of risk taken up in the investment. Thus, the figure would help the equity investor to decide that a low cost of equity relative to the risk taken is not worthy, and a high cost of equity relative to the risk would be beneficial.

Nevertheless, equity is not the only source of financing available to firms. Debt and even hybrid securities can play a large role in the financing of firms' projects, and so it is important to calculate the cost of these as well.

Beginning with the cost of debt, we can use this measure to identify the amount it would cost a firm to borrow funds for the purpose of funding projects. In order to tackle this issue, we must determine the default risk of a firm and transform it into a default spread that can then be used to derive the cost of debt. The financial situation of a company will make it easier or harder to determining the cost of debt, depending on their rating and bond trading activity. For example, a firm that has various outstanding liquid bonds that are often traded will be able to use the market price of the bond, along with its coupon and maturity, to come up with a yield that can then be used as the cost of debt. However, in the case that we have a firm that doesn't trade its bonds frequently but is nevertheless associated with a specific rating, we may use their rating, and the default spread it corresponds to, to acquire the cost of debt.

But suppose we have a firm that neither trades its bonds with frequency nor has any formal rating attached to it, such as is the case with small firms or private ones. In such cases, we can derive the cost of debt through two predominant methods. The first is to examine the firm's most recent borrowing history so as to gauge what sorts of default spreads are being charged on the firm, and thus use these spreads to estimate the cost of debt. Alternatively, we may be so bold as to assign our own synthetic rating to the firm. To do so, we must have a selection of rated firms that are comparable to the small or private firm we are examining, thereby using these rated firms as benchmarks. Then, we can calculate the interest coverage ratio of the small or private firm by dividing the EBIT by the interest expense. This ratio enables us to view with how much ease a company can pay interest on outstanding debt. Thus, if we were to have a small or private firm with an interest ratio of 7.1, we can use a table similar to that provided below to see that the corresponding synthetic

[6] i.e. the beta of the firm with debt.
[7] i.e. the beta of the firm with no debt.

rating we could attribute to the small or private firm is AA, and its relative spread is 1%. Hence, we would add this default spread of 1% to the risk-free rate in order to generate the pre-tax cost of debt. The same can also be done for larger firms with a market cap above $5 billion, but the interest coverage ratios for these are usually lower than the ones for the small firms and so a different table is required to look up the results.

Figure 4: *Interest Coverage Ratios and Ratings: for small non-financial service companies with market cap below $5 billion.*

Interest Coverage Ratio greater than	Interest Coverage Ratio less than	Rating	Spread
12.5	100000	Aaa/AAA	0.75%
9.5	12.499999	Aa2/AA	1.00%
7.5	9.499999	A1/A+	1.10%
6	7.499999	A2/A	1.25%
4.5	5.999999	A3/A-	1.75%
4	4.499999	Baa2/BBB	2.25%
3.5	3.999999	Ba1/BB+	3.25%
3	3.499999	Ba2/BB	4.25%
2.5	2.999999	B1/B+	5.50%
2	2.499999	B2/B	6.50%
1.5	1.999999	B3/B-	7.50%
1.25	1.499999	Caa/CCC	9.00%
0.8	1.249999	Ca2/CC	12.00%
0.5	0.799999	C2/C	16.00%
-100000	0.499999	D2/D	20.00%

(Source: Damodaran, 2015)

Figure 5: *Interest Coverage Ratios and Ratings: for large non-financial service companies with market cap above $5 billion.*

Interest Coverage Ratio greater than	Interest Coverage Ratio less than	Rating	Spread
8.50	100000	Aaa/AAA	0.75%
6.5	8.499999	Aa2/AA	1.00%
5.5	6.499999	A1/A+	1.10%
4.25	5.499999	A2/A	1.25%
3	4.249999	A3/A-	1.75%
2.5	2.999999	Baa2/BBB	2.25%
2.25	2.499999	Ba1/BB+	3.25%
2	2.2499999	Ba2/BB	4.25%
1.75	1.999999	B1/B+	5.50%
1.5	1.749999	B2/B	6.50%

1.25	1.499999	B3/B-	7.50%
0.8	1.249999	Caa/CCC	9.00%
0.65	0.799999	Ca2/CC	12.00%
0.2	0.649999	C2/C	16.00%
-100000	0.199999	D2/D	20.00%

(Source: Damodaran, 2015)

Having acquired a suitable pre-tax cost of debt, we must now assume the task of estimating a post-tax cost of debt using the following formula:

$$post\ tax\ rate: pre\ tax\ rate \times (1 - marginal\ tax\ rate)$$

Easy as though it might sound, it is actually rather difficult to compute due to the range of possibilities available. We can either use the effective tax rate (whereby the taxes are divided by the taxable income) or the marginal tax rate (in which we tax the last dollar/ euro of income). It is important to note that since interest is tax deductible, firms usually tend to deploy the marginal tax rate for post-tax returns.

Cost of preferred stock

We touched on the notion of hybrid securities earlier, which encompass elements of both security and debt. Preferred stock is a perfect example of this, as the preferred dividends are pre-established at the time of issuance and have the priority of being paid out first, all the whilst being tax-deductible – the former corresponds to equity trait and the latter resembles debt. The formula for perpetual preferred stock is presented as,

$$k_{ps} = \frac{Preferred\ dividend\ per\ share}{Market\ price\ per\ preferred\ share}$$

This equation, however, is only suitable if the stock dividend remains constant to perpetuity and has no extraordinary features, such as callability or convertibility. If these conditions weren't to be met, these extraordinary features would have to be valued individually. With regards to the risk, preferred stock lies between equity and debt: given that the dividends are paid out before common equity, this would render the preferred stock more safe than equity, meaning the cost of preferred stock would lie below the cost of equity. Conversely, debt payments are paid out before preferred dividends, rendering preferred stock riskier than debt, meaning we should expect to have a cost of preferred stock superior to that of debt.

Calculating the weights of debt and equity components

It is absolutely crucial to define the exact liabilities that constitute 'debt' for the purpose of calculating cost of debt. As we mentioned earlier, interest is tax deductible and it is for this reason that the marginal tax rate is the preferred rate for the cost of debt calculation. Thus, we must ensure that the liabilities we

are including in our estimation bear no interest as, if they did, this would counteract the potential for an accurate measure of the cost of debt. Just as there are certain items that we should exclude on purpose, we should be wary of the items we are not taking into account unknowingly. Such items take the form of off-balance sheet items, and we must pick the ones that offer the same tax deductions that interest offers before capitalising them and handling them as if they were debt.

There has been much debate regarding whether to use the book value or the market value in the calculation for the weights attached to the costs of equity and debt. Damodaran (2001) seems quite adamant that the correct value to take is the market value, as the cost of capital estimates the cost of issuing securities needed to finance projects, and such securities are issued at market value.

Thus, we must now endeavour to deduce the market values of the equity and debt. With regards to the market value of equity, this is usually the number of shares outstanding multiples by the actual stock price. As for the market value of debt, it would be relatively easy to gauge this if all the debt was possessed in the form of bonds. However, as this is a very unlikely and uncommon scenario, given most firms possess bank debt which happens to be given at book value only, we have to value these once converted into market value debt. This could be done by viewing all the recorded debt of the firm as a single coupon bond, with a coupon equating the interest expenses on the debt and a maturity set to be the same as the face value weighted average maturity of the debt. Thus, we would be able to value this 'single coupon bond' at the current cost of debt, as elucidated in the formula below:

$$Estimated\ market\ value\ of\ debt = i \times \left(\frac{1 - \frac{1}{(1 + current\ k_d)^t}}{current\ k_d} \right) + \frac{d}{(1 + k_d)^t}$$

where i symbolises the interest expenses, k_d is the cost of debt, t is the maturity and d is the total debt.

Estimating terminal value

Since, in practical terms, it is impossible to generate expected cash flows *ad finitum*, what we can do is assert a final year for the forecast period. In Europe, this typically tends to be between five and ten years, as this is usually the point when ROEs begin to regress to their standard levels, thereby implying a cease in the production of supernormal returns. There are some analysts who find great use in determining the expected value of growth beyond the final year of the forecast period, known as the terminal year, and the representative figure would reflect the ability of the firm to generate the aforementioned supernormal returns.

Terminal value can be estimated through three different ways. The first is to assume that all of the firm's assets would be liquidated in the terminal year, and so the calculation of how much these assets would be worth can be a fairly good reflection of the terminal value. The other two methods look at the firm through the perspective of going concern where the firm actually continues to function as normal and generates profits. The first of these other two methods deploys ratios such as multiple to earnings, revenues or book value to gauge the terminal value, whilst the second method takes the liberty of presupposing that the firm will continue to grow at the same, stable rate *ad finitum*.

Liquidation value

If we decide to adopt the liquidation value approach, we are implicitly assuming that the firm will halt its operating process at the estimated terminal year, and all the assets would be sold off for the highest price offered. The two ways in which we can ascertain this liquidation value. The first is based on the book value, adjusted for inflation.

$$LV = BV_{term\ year}(1 + inflation\ rate)^{mean\ asset\ life}$$

The problem with this model, however, is that by basing the calculation on the book value, we are not gauging a true picture of the earning power of the assets. Thus, another way to estimate the liquidation value would be to take the estimated expected cash flows and discount them to their present value. Furthermore, should we be valuing the equity specifically rather than the firm, we must subtract the expected debt value from this liquidation value to approximate the liquidation proceeds for equity investors.

Multiple approach

By means of this method we are able to estimate the terminal value by implementing a multiples to the expected earnings or revenues of the firm in the terminal year. If we are to value the equity, we ought to use explicitly equity multiples to generate this result.

The complication with the multiple approach is that it lies somewhere between the stable growth model and relative valuation. This is due to the fact that the multiple can be estimated either using fundamentals, in which case it resembles the stable growth model, or by examining the multiples of comparable firms, thereby bearing great similarity to relative valuation. For this reason, we may find ourselves obligated to deploy either the estimation of the liquidation value, or that of the stable growth rate which we will explore now.

Stable growth rate

Assuming the cash flows of the firm will continue to grow beyond the terminal year at a stable growth rate, we can estimate the terminal value using the following formula,

$$TV = \frac{CF_{T+1}(1+g)}{k-g}$$

where CF_{T+1} is the value of the cash flow the year after the terminal year, k is discount rate, and g is the stable growth rate. Depending on whether we are valuing the firm or just the equity, we would use the free cash flow to the firm and a cost of capital for the former valuation and the cash flow to equity and cost of equity for the latter.

In any case, it seems rather incoherent to calculate the value of a point so far into the future. This is due to the fact that such long-term growth is bound to be affected by the inevitable element of competition. This competition ought to ensure that the super-average profits the company's terminal value alludes to is lessened significantly, thereby rendering the terminal value almost void of any practical use. Having said this, perhaps the ability to predict the liquidation value of the firm, otherwise known as the value of closing, is a good enough reason to take the time to estimate this, before computing the equity value which we shall discuss later on.

Relative valuation

Description

Whilst discounted cash flow valuation focuses on the internal financial components of the firm itself, whilst taking external factors into account such as market movement and government bonds, relative valuation is wholly based on the analysis of comparable companies and comparing and contrasting their multiples the those of the firm in question.

Although discounted cash flow has its benefits, relative valuation seems to play an important role when we discuss the value of assets. In day to day life, this appears to be rather common as, if we already have an estimate for the worth of a certain item, we tend to compare this worth to that of other items so as to elucidate its quantified value. This is exactly the notion behind relative valuation: we take a standardised measure belonging to a firm, for example earnings or revenues, and compare these measures to those of similar firms.

Damodaran (2012) states that two fundamental principles make up the notion of relative valuation. The first is that the prices with which we are to relate to must be standardised to generate a completely transparent and as close to accurate a comparison as possible. This is generally done by converting prices into multiples of earnings, books values, or sales. The second is to find and justify the use of similar firms, drawing on the most objectively important features of a firm, such as cash flows and the capacity for growth.

When choosing a firm, or firms, with which to compare we must ensure that they are likened to the firm under valuation with respect to risk, growth and cash flows. We must also be careful to select firms that pertain to the same industry as our valuing firm, given that this will make the comparables much more coherent and logical. The notion of comparing a supermarket chain with a start-up app company seems ridiculous, as the two firms would most likely have completely different growth rates, cash flows, and certainly polar opposite levels of risk. Thus, it seems fairly self-explanatory why we must stick to the same industry.

However, in order to carry out relative valuation, we must make certain assumptions regarding the market. First and foremost, we are to assume that the market correctly prices its stocks on average, but tends to be erroneous when it comes to pricing single stocks independently. Once we have established this, we can then go on to execute the relative valuation process in four different ways: through fundamentals, comparables, cross-sectional, or across time.

Different approaches

The fundamentals approach is very much similar to discounted cash valuation, as it deploys the use of fundamentals about the firm in question, such as cash flows, risk, or the ability for earnings to grow and the patterns within. Such a tool enables us to compare the multiples of a firm to the innate qualities of a firm, thereby allowing us to see the relationship between the two and how a rise or diminishing in a particular feature of the firm might affect the multiples. This is very much an inward-looking approach into the firm, as we are predominantly concerned with the workings within the company.

The comparables method revolves around the explicit use of comparing and contrasting. This can be done either by juxtaposing the firm being considered with other firms akin, or by setting it side by side with itself and how it was prices in past times. However, it would be naïve to believe that the possibility of finding two identical firms is even fathomable, and so we must be prepared to highlight and pinpoint the important variables we would like to contrast for, and control for the differences between the firms either through industry averages or by means of intricate multivariate regression models.

The cross-sectional procedure can be considered to be a subset of the process using fundamentals, as cross-sectional valuation essentially involves the comparison of one firm's current ratio to another firm's actual ratio.

Valuing firms across time can only really be applicable to firms with a long-standing history. This is due to the importance of not only having various points in time from which to choose a particular multiple to be compared, but also because of the implications a long period of time has: the firm would have gone through periods of high and low earnings or intervals of high and low growth. Having said this, the main assumption we must absolutely have in mind in that firms do not change over time, as so we are able to perfectly compare

today's multiples with those of 20 years ago. This approach has its obvious flaws, but its benefits are also important to note and we shall explore these further.

In essence, the concept of valuation comes down to three main types of multiples: earnings, book value and revenue. In this paper, I shall focus on earnings multiples, as these are the most widely used ratios, predominantly developing the notions behind price to earnings, enterprise value to EBITDA, and enterprise value to sales multiples.

Price to earnings

The price to earnings multiple (henceforth P/E) is perhaps the most popular ratio that is used for the purpose of relative valuation. The P/E multiple is calculated by deducing the ratio between the market price, or equity value, per share and the earnings per share. One we have this ratio in a quantifiable term, we can then use it to inspect firms that pertain to the same industry before extrapolating our examination across all firms in the market. However, it is absolutely crucial to note that the moment we decide to cast our analysis across firms that do not belong to the same industry as the firm in question, we must account for the differences in trends, such as growth rate patters and risk, between firms from different industries.

Given that we are comparing ratios directly with the market, we must be mindful of extreme economic conditions in the market, such as changes in interest rates, risk premiums, and growth. *Ceteris paribus*, a reduction in interest rates would yield a lower cost of equity for the market, thereby rendering the P/E ratio higher. Additionally, if investors are more risk-averse, the equity risk premium will be elevated, resulting in a lower P/E ratio. Finally, should expected growth in earnings be pessimistic and predict low values, this will provoke a lower P/E ratio for the market.

Not only does the P/E become problematic with respect to fluctuations in the market, but it can also come up with misleading values. This is due to the fact that the 'earnings' that represent the denominator of this ratio are affected by certain variables within the firm, such as expenses.

Enterprise value to EBITDA

As well as the option to value with regards to the equity of a firm, as above, we are also offered the possibility of valuing with respect to the firm itself, and not just the equity alone. This is done through the 'enterprise value', also known as the firm value, which reflects the market value of a firm without being dependent on variations in inner-firm variables. Koller (2015) argues that the effective way to gauge whether a firm has increasing growth in this context would be to refer to the relationship between the return on invested capital and the cost of capital. Given that the EV/EBITDA multiple takes return on invested capital into account, it is safe to say that, *ipso facto*, Koller (2015) believes that the EV/EBITDA multiple is an approvable ratio to measure growth in a firm.

Should the firm generate profits that are anything other than positive, Koller (2015) and his peers recommend the use of the EV/sales ratio,

Advantages and disadvantages of relative valuation

The obvious attraction of relative valuation stems from its simplicity and convenience when it comes to drawing comparisons. Being a favourite of, for example, the majority of private equity firms, the use of multiples offers a quick source of contrast with which to deploy the managing of similarities and differences between a vast number of firms in a way that is utterly unchallenging to grasp and easy to explain to a client. However, the disadvantage to this is that, given its ease of use, it can in turn provoke an ease of manipulation. Those who are valuing the firm can effortlessly use these multiples to their advantage by either handpicking the multiples to suit their argument or pinpointing "comparable" firms to generate multiples values that suit their interest. This is heavily influenced by the subjective element of relative valuation due to the previous point made that no two firms are alike, and so bias and influence will come into play when choosing and justifying certain firms with which to compare.

Another advantage is that as we are obliged to assume that the market is, on average, correct, this notion draws immediate links with the firm in question, allowing us to generate a vivid picture as to the health and mood of the market. The downside to this is that if we are valuing at a time when the market is fundamentally mispricing assets, we are only building our valuation on a fallacious set of values, thereby leading to an inevitably erroneous valuation whereby we have a set of high values if the market has overpriced the firms we used as benchmarks, and a set of low values if the market has underpriced these firms.

Practical valuation process

Industry analysis

This step is absolutely crucial in the valuation process, as it allows us to fully comprehend the structure and environment around a particular firm thereby allowing us, through our studies, to pinpoint areas of weakness and strength for potential growth. By conducting a study of the industry we are performing a valuation on, we can determine specific points regarding the sensitivity of firms in the industry to market volatility, business-cycle movements, and even to particular demographics. This step is a huge aid in the allocation of benchmarks and to find gaps for growth.

The fundamental group to create is one based on the principle activity of the firm. This means that we collect sample firms whose revenues stem from the same type of activity as that of the firm in question, be it through a particular range of products or a type of service. We can also create comparables by looking

at cyclical and non-cyclical firms, and allocating the samples to one of the two. Pinto et al. (2015) describe cyclical companies as those whose revenues are strongly dependent on the health of the economy as a whole. These firms tend to grow and be in high demand when the economy is performing well, but tend to suffer when then economy is slacking. This is due to the fact that cyclical firms offer goods and services that aren't required a necessity by all means, and the purchase of these can be postponed to a later date when the market is healthier or when the individual has a higher disposable income. Examples of these firms include luxury goods, beauty services, and private aviation. Contrary to this, non-cyclical firms bear quite the opposite characteristics. These companies offer goods or services whose demand remains largely independent of the economy as whole. These goods or services tend to be regarded as "necessities", that is to say, day to day products or services which contribute to the average quotidian life. Seeing as the demand of these goods remains predominantly stable throughout periods, these are said to be unaffected by extreme economic movements, and therefore have little to no dependence on the economy as a whole. Examples include food and beverages, household goods, and healthcare. Although it is true that a recession will affect all companies, cyclical and non-cyclical alike, it is through these periods that we will be able to pin-point the truly non-cyclical firms, as these will continue to be demanded, whilst other firms selling goods that can be bought once the recession has passed will inevitably flop. Another important point to make is that different countries will have dissimilar performances when it comes to cyclical and non-cyclical firms. It might be that a yacht company in Monaco will manage to plough through difficult times and keep its profits at moderately high margins, but it would seem preposterous to expect a similar firm to prosper in an economically-healthy Afghanistan.

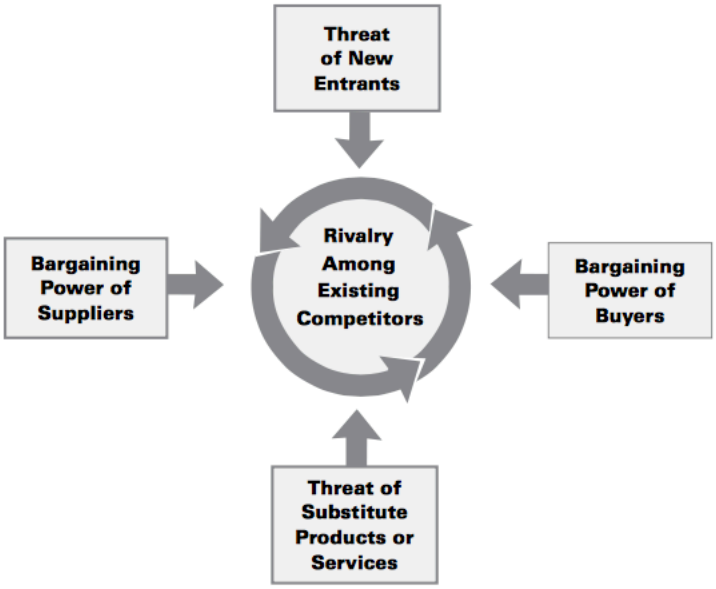
Once we have established a clear industry and types of features our comparable companies must behold, we can then begin to devise a peer group. This 'peer group' ought to encompass firms whose growth and sales are affected by the same factors as those of the firm in question. Although it seems to be an objective process past the points of choosing an industry and similar business activities, the compiling of a group of peer companies quickly becomes a subjective task whereby the analyst has a gargantuan number of firms at his or her disposal and he or she must determine which features to focus on when drawing similarities and differences. For example, as Pinto et al. (2015) remark, the analyst might delve deep into the investigation and attempt to ascertain not just which business activities the revenues come from, but to which degree do they stem from said activities, and what fraction of the operating profit comes from these as well. Other questions might include whether the firm belongs to or holds any subsidiaries to aid it in its financial endeavours, or which risks these firms are vulnerable to.

Strategic analysis

Having defined the industry and types of peers to which we would like to compare our firm, we then go on to conduct what Pinto et al. (2015) refer to as a 'strategic analysis', whereby we look into the competitive environment with the

intention to specifically outline the effects of the economic environment on the business itself. Michael Porter's (2008) "five forces" structure brilliantly enables us to encapsulate these effects into precise and coherent components.

Figure 6



(Source: Harvard Business Review, January 2008)

Threat of new entrants

The act of having new entrants in an industry has a direct impact on competitiveness. This is due to the fact that with more companies within an industry comes the emergence of a "cap on the profit potential of an industry."[8] This means that smaller firms might find it more difficult to prosper under such conditions, as there are more firms entering the industry and seizing the portion of potential growth that could have been allocation to these smaller firms. In addition to this, if we consider multinational firms that are diversifying and branching out to encompass more industries in their portfolio, we can say that this places even more pressure on smaller and weaker companies to fight for their position in the industry. As Porter (2008) notes, it is not the act of entering the industry itself that diminishes the profitability of these other companies, but rather the "threat of entry" that allows this possibility to be brought about. This threat of entry can be contextualised in a setting whereby a particular firm produces large amounts of supply, thereby being able to diminish costs and sell more goods, rendering them an enticing company to enter the industry. Another example could be in the context of demand, whereby a firm with an already large market audience is expanding to another industry and is able to carry a large

[8] Porter, M. E.

proportion of this audience over to the other industry, thereby easing its entry into the new market.

Thus, the analysis of new entrants is pivotal to a strategic analysis and we must find ways of acknowledging the existence of these firms and the possibilities they have with respect to competitiveness whilst ensuring that the profits of other firms in the industry are not dampened.

Bargaining power of suppliers

The degree of power a supplier bears determines the extent to which other companies thrive or thaw. If a supplier holds immense influence, they are able to elevate prices to their liking. This results in successful companies being able to meet these price increases and continue to compete in the industry, whilst having a negative effect on weaker firms. This is predominantly true in a situation whereby few suppliers exist, and so rising prices will be absolutely feasible for the strong suppliers as their client firms will struggle to find a supplier that is on a par to the one they have. The supplier firms that will generally soar under such conditions are those who offer niche products, either by means of quality or the individuality of the type of good itself, as a hospital seeking out a specific drug from a pharmaceutical might find itself struggling if the pharmaceutical is one of two that offers this drug, and decides to augment its prices.

Bargaining power of buyers

The opposite to the power of suppliers, some clients are exceptionally powerful when it comes to purchasing goods or services. This is especially true if the buyer is one of a few clients who are demanding the product in the first place, or if there are several suppliers from which to choose. Additionally, if the buyer has the potential to do so, the client can even threaten the suppliers and take on the responsibility of producing the good themselves, thereby casting fear not only over the prospect of having a new entrant in the industry, but also having one that produces goods that are truly of high-standard, given these buyers know exactly what they desire from the product and strive to generate it in mass quantities.

Threat of substitute products or services

Substitutes between industries, not just within the same industry, can pose immense threat. With the increasing development of technological advances, we see more industries suffering whilst some have even become extinct. We have witnessed ex-gargantuan chains such as Blockbuster and HMV become defunct due to the rise in platforms such as Netflix and iTunes. This effect is further contributed by the evolving mentality of the 21st century society in which the desire to own a CD seems to belong to the older generation, whilst

the 'millennials' prefer to stream these films and music or purchase them and store them online.

Rivalry among existing competitors

Porter (2008) notes that this competition is epitomised through marketing strategies, improvements made to the good or service, and price adjustments. An environment with much rivalry causes the industry to suffer from low profits, and this effect is greatly influenced by vigour with which the firms are challenging each other and on the grounds on which they are competing. This rivalry would have a tremendously detrimental effect on the profitability of an industry if it is only subject to price changes, as this price competition would shift profits straight from an industry to its clients.

Company analysis

The next course of action to take would be to look into the competitive strategy deployed by the firm, most commonly determined through a SWOT analysis. This analysis examines the internal structure of a firm, namely its strengths, weaknesses, opportunities, and threats. Such elements ought to be compared and contrasted with those of similar companies in order to achieve an optimal and three-dimensional view of the firm, and so the industry analysis should play an important role in this micro-analysis.

Financial modelling

Subsequent to these environmental analyses, we must look into the figures that compose the firm. As mentioned at the beginning of this paper, we have the option to carry out a DCF or relative valuation.

DCF valuation

Supposing we wish to begin with the DCF model. We have already discussed the different components needed to carry out the DCF valuation, albeit separately. Let us know take a look at how each of these elements are put together to create a progressive flow of results. Firstly, we gather the balance sheet and the income statement of the firm in question. Then, if dealing with a multinational firm, we establish the currency with which we perform our calculations, and justify the reason why we would choose one currency over the other. Subsequently, we would approximate the free cash flow, after any adjustments have been made. Such adjustments can take the form of categorising items in the balance sheet into operating assets, financial assets, operating liabilities and financial obligations (Penman, 2010) and calculating the net operating assets and the net financial obligations as follows:

$$Net\ operating\ assets = operating\ assets - operating\ liabilities$$

$$Net\ financial\ obligations = financial\ obligations - financial\ assets$$

Alternatively, or additionally, we can perform adjustments in the income statement by compiling the elements into two distinct categories: operating and financial items. These adjustments would help us to deduce the growth rate and the free cash flow needed to perform the valuation itself, and so under certain scenarios we may feel obliged to do so in order to get the valuation results.

To actually calculate the free cash flow, we mentioned previously that there were two approaches: free cash flow to the firm (henceforth FCFF) and free cash flow to equity (henceforth FCFE). Let us remind ourselves about these two approaches and develop them further. The FCFF is the cumulative cash flows to all the claimholders to the firm (Damodaran, 2012). The formula to generate the firm cash flow is as follows:

$$FCF = EBIT \times (1 - t) + D - CAPEX - \Delta NWC$$

where t is the rax rate, D account for depreciation, $CAPEX$ is the capital expenditure, and ΔNWC represenrs the change in net working capital.

Equity cash flow, on the other hand, is calculated as follows:

$$ECF = NP + D - CAPEX - \Delta NWC - RD + NB$$

where NP represents the net profit, D is the depreciation, $CAPEX$ stands for capital expenditure, ΔNWC is the change in net working capital, RD symbolises repayment debts, and NB reflects the net borrowings.

We also mentioned that to calculate the value of the firm with the FCFF we would use the WACC as the discount rate, whilst the discount rate applicable to the FCFE is the cost of equity, so as to determine the value of just the equity. Another difference between the two approaches arises when we consider maximum price: we must bear in mind that the maximum price for a firm cash flow is the net present value minus net debt, whilst the maximum price for the equity cash flow is the net present value untouched. Another difference between the two approaches is the rate at which they grow. Damodaran (2012) notes that equity cash flows have net income or earnings per share as their stem, whilst firm cash flows are grounded on operating income. He goes on to intuitively state that expected growth would be lower in operating income than in net income, due to the effect financial leverage can have on net income and increase its value. Thus, we can confirm that firms with low leverage are best suited for the FCFF model, as the FCFE approach would be likely to cause problematic results given the fluctuation emitted by the equity itself and the variations in debt payments.

The next step of the process would be to estimate the WACC, which includes elements such as the cost of equity and the cost of debt. We affirmed that the cost of equity follows the CAPM, whereby we calculate the cost through

the use of a risk-free rate, the market risk premium and a beta that represents the level of risk involved. The cost of debt, as specified, can be determined by the risk-free rate, the default spread over a bond and the tax rate imposed. Having gathered these two costs together, we can then input them into the WACC calculation, along with the proportions of debt and equity, to derive the final cost of capital.

As one of the final steps of the valuation process, we compute the terminal value. This can be done through the liquidation value, if we assume the company is going to sell off all of its assets, through the multiple approach, which might cause some difficulties in overlap, or through the stable growth model. If we opt for the last of these options, we calculate the terminal value as follows:

$$TV = \frac{CF_n\,(1+g)}{k-g}$$

As the penultimate part of this process, we would calculate the firm value, otherwise known as the equity value, by adding the net present value of the free cash flow to the present value of the terminal value achieved in the previous step. Finally, we determine the equity value. To achieve this value, Damodaran (2012) suggests we take the enterprise value and subtract from it the non-equity claims on the firm – in other words, the debt and the preferred stock.

Valuing private companies

The process of valuing a private company isn't too dissimilar to the process of valuing a listed company. We still have the option of using the discounted cash flow method, either the FCFF or the FCFE, or we can opt for relative valuation. However, the predominant issue we face is that we have no set market value we can just look up and assign to the firm, and little to no annual reports from which to access a broad range of information regarding the structure of the firm, its competition, and much about its financial status. The lack of market values means we do not have a beta nor standard deviation readily available to us, and we must therefore embark on the quest to approximate suitably accurate parameters as a replacement for these cryptic measures. Regarding cash flows, we may find that the company is newly set-up, and therefore suffers from a short financial history with which to ground our valuation upon.

The most common way to solve for these issues is to use publicly-listed companies in the industry as benchmarks in order to gauge appropriate variables for the discount rates and the beta. The beta is a crucial element to the cost of equity and CAPM and, luckily, we have a straightforward method with which to compute this measure of risk known as estimating the bottom-up beta. For publicly listed firms, we tend to deploy the unlevered beta, meaning the beta of a company with no debt, because this tends to smooth out errors through averaging and also encapsulated the forward-looking perspective that we desire when valuing (Damodaran, 2012). And so, with a private firm, we would have to

unlever this market beta before leveraging it again and assigning it to the beta of the private firm. This explanation is illuminated more clearly through the following equations:

$$B_U = \frac{B_L}{\left[1 + \left((1-t)\times(debt/equity)\right)\right]}$$

$$B_L = \frac{B_U}{\left[1 + \left((1-t)\times(debt/equity)\right)\right]}$$

With this measure for beta, it is relatively straightforward to continue with the valuation process.

Bimba y Lola

Introduction

Bimba y Lola (henceforth BL) was founded in 2005 by sisters Uxía and María Dominguez Rodriguez, nieces of Adolfo Dominguez, founder of the namesake apparel brand. The label is dedicated to the design, production, and sale of clothing and accessories. Initially, BL's primary activity was focused on leather goods, shoes, and jewellery. Since its inception, it has diversified to include a "Ready to Wear" clothing line, encompassing dresses, jumpsuits, swimwear, and much more.

After an initial investment of €15 million, the brand opened its first shop in Bilbao. Two years after its first opening, and headquartered conveniently in Vigo, the brand gained presence in 70 shops throughout Spain, and has been growing exponentially since. To this day, BL has become a household name in Spain, enabling the label to branch out to over 150 shops (both own labelled and multi-brand) on an international scale in over 17 countries, ranging from the United Kingdom to the United States.

One of the key reasons for its success has been due to the business focus towards a market sector that had previously not been sufficiently covered: the semi-luxury segment. This enables the brand to access a larger scope of clientele, as those who wish to access a more luxurious range of goods for ergonomic and quality purposes can access this brand, whilst those who wish to benefit from relatively cheap costs with regards to quality can do so as well, reaching the exact midpoint between high-street and luxury goods. The establishment have a flair of exquisiteness and luxury, and are always located on busy and buzzing city streets or in large department stores, thereby easing the high turnover and consequently the success of the point of sale.

BL target audience is primarily composed of young women (between 25 and 45 years old) with a medium to high purchasing power, who are keen on fashion and latest trends and can afford to spend a relatively large sum of money on luxury items, all the while complementing these (and balancing out their funds) with cheaper accessories. And so, the price range put forward by the brand is very diverse, ranging from €20 bags to costs of up to €1,400. Perhaps part of the success of the brand is indebted to the recognition of having to adapt itself to the "bipolarity" of the 21st century commercial demand: the consumers who persevere to save as much as possible on certain products, perhaps a flight ticket, but are willing to deplete their funds on other goods, such as a high-quality coat. Once this success was fully corroborated, the growth and opening of new points of sale were transformed into strategic objectives: thus, an ambitious expansion plan was born in the form of the opening of around 50% of own-brand shops and franchises, both on a national level as well as on a global scale.

Inditex itself, witnessing the remarkable evolution of BL and the great possibilities its quasi-virginal sector had to offer, decided to come head to head with the privately-owned label by launching its own brand Uterqüe, focused on exactly the same target audience and putting across the same concept as that of BL.

Offering a huge range of commercial accessories is another characteristic that has contributed to the success of BL's business format. With greater variety comes ease of reaching the tastes of the consumers, thereby accessing a broader audience base and generating more turnover and greater sales. The star products of the brand are their handbags, which account for 34% (in 2015) of the total turnover.

BL relies on a large and youthful group of designers, with an average age of 30 years, of which its own network of head-hunters forms part, who travel the world striving to identify the tastes and preferences of urban and cosmopolitan women.

As well as clothing and accessories, BL has taken care to give its brand a 3-dimensional edge by maintaining close-knit relationships with the word of art. Thus, the collaborations between BL and up and coming artists are strengthening the presence of the brand in further sectors as well as globally. The quirkiness of the brand, doubtless, contributes to the growth in interest, and has been present since its birth, when the founding sisters named the label after their two greyhounds, thereby giving rise to its infamous logo. The remodelling and upgrade of the logo itself reflects the brand's ability to adapt and develop itself to suit an incessantly-evolving target audience.

Figure 7

(Source: produced by the author)

It seems as though the inbred commercial experience gathered by the founding sisters, in conjunction to access to sources of funds, contributed immensely to the development and success of this company. Such points of success are materialised predominantly through the penetration of an under-explored semi-luxury market segment; the combination of design, trends, and quality; and the efforts to turn the brand into a synonym for urbane, cosmopolitan and sophisticated feminine fashion – a new fashion benchmark for the 21st century woman.

Industry analysis

Identifying comparable firms

In order to find firms that are similar to BL, we must narrow down out possibilities to those firms that provide similar products or services, have similar business-cycle sensitivities, and similar statistical features. In terms of similar products, given that BL derives the greater part of its revenues through clothing apparel and accessories, we must find comparable companies that sell the same or similar items. Additionally, we must bear in mind that, within the clothing industry, there are different ranges, varying from the high-street labels to the luxurious up-market brands. BL, as we have mentioned, lies between the two: the firm produces good quality clothing and accessories yet keeps the price range accessible for most young women, and certainly for middle-aged women, of whom a large percentage would be earning their own disposable income. Additionally, given that that the brand is selling goods that are not seen as "necessities", we ought to find companies that are cyclical and largely dependent on the economy's overall health. We can pinpoint these companies by determining which ones do not have that stable a growth, and must implement clever business strategies and marketing ploys in order to keep demand high and sales growing.

Business description

Bimba y Lola's primary activity is the sale of clothing apparel and accessories. Established in February 2005, it holds its headquarters in Vigo, Spain. Its clothing line and range of accessories is directed predominantly towards young to middle-aged women, but they also target men and children with separate collections. Additionally, the firm offers services such as basic

alterations. *Bimba y Lola* acts as a subsidiary of *Bimba y Lola Studio S.L.*, another firm that takes part in business and management consultancy operations.

The firm's export levels comprise 19% of the entire firm, and target continents include Europe, Asia, and the United States. Being a cyclical company, the firm experiences wider than average fluctuations in demand, thereby resulting in high demand during periods of economic expansion and low demand during periods of economic contraction. Regarding demand, the goods are relatively expensive and represent purchases that can be delayed if necessary (for example, due to declining disposable income). As for consumer discretionary, *Bimba y Lola* derives a majority of revenue from the sale of consumer-related products or services, for which demand tends to exhibit a relatively high degree of economic sensitivity.

Strategy

Mission

The company's mission is to ensure that it remains leading in the textile sector, gets ahead of trends by creating new designs through a vertical integration strategy, and sells products with an acceptable price as regards their level of quality. Additionally, the company seeks to take advantage of an under-explored segment: that of semi-luxury.

Vision

Bimba y Lola strives to be a leading business in the clothing and accessories sector, hoping that their sale and distribution of clothing garments will reach any location in which there is an alcove of clients, so as to obtain different designs and trends.

Objectives

Bimba y Lola's objectives target trends of clothing garments, efficient administration, clients and their satisfaction, renown, and business growth. It seeks to expand its commerce internationally, targeting a younger audience. They strive to emphasise their star products, handbags and accessories, thereby satisfying a broader range of tastes. The label hopes to take advantage of the increase in national fashion popularity by making the national part of the brand stand out. Additionally, Bimba y Lola seeks to strengthen its communication presence by means of social networks.

Industry overview

The industry BL pertains to is that of apparel and fashion, specifically to the manufacture and sale of apparel and accessories. There are 1,061 companies in Spain that belong to this same industry.

Global economic growth

In 2015, the implementation of a monetary policy by the European Central Bank caused the euro to feel a downward pressure, thereby declining the Euro. This measure was put in place to increase the competitiveness of European exports, meaning investors were seen elevating equity prices of these European firms. The women's apparel market growth will grow quicker, propelled by the augmenting pressure of emerging markets which, by 2025, will account for 55% of apparel sales and 60% of growth.

Industry analysis

Given the broad range of fashion firms to choose from, I decided to follow a step by step process to narrow my selection down to just two benchmark companies. Firstly, one of the key features I was interested in was a firm that produces the same goods as BL – namely, clothing and accessories. This implied that the firm had to pertain to the fashion industry, be cyclical in its nature, and be vulnerable to the same economic fluctuations as BL. Next, I preferred to select companies that were either of the same size as BL or those that were bred in Spain. I wanted a choice of the two so as to gauge between differences in Spanish economic fluctuations and the effects global economic movements would have on relatively smaller firms. The concept of internationalisation was also important, as BL has been looking to diverse its brand on a broader scope across many continents. Finally, I strived to gather the companies that best suited BL in terms of revenues and sales.

Having conducted this study, I opted for Inditex and H&M. The main reasons behind this choice was that they both ticked the box for types of goods produces, proportion of sales, and international presence. Although H&M isn't a Spanish born and bred brand, it was far more similar to BL in terms of size than Inditex was, as the latter encompasses a gargantuan mass of other brands with which BL independently cannot compete.

Porter's Five Forces

Threat of entry: it is easy for new competitors to enter the fashion industry, resulting in weak barriers to entry and, consequently, more competition between firms. This therefore gives way to lower profitability for BL, as the profits they could have gained are instead being shifted to its more desirable competitors.

Power of suppliers: suppliers have low power due to the large diversity available, resulting in low prices. However, the suppliers of relatively scarce or limited elements (such as leather) possess greater pricing power, meaning they have more freedom to elevate private or place restrictions on the supply of goods for fashion company.

Power of buyers: a great number of customers exists, and hence it is rather for the buyers to demand lower prices unless this is done through sales.

Threat of substitutes: this can negatively affect demand if customers choose other ways of satisfying their needs. For example, consumers may trade down from premium to discount brands during recessions. Low-priced brands may be close substitutes for premium brands, which, when consumer budgets are constrained, reduces the ability of premium brands to maintain or increase prices. Substitutes do not have to be similar but can satisfy a need with a very different product.

Rivalry among existing competitors: this is a function of the industry's competitive structure. Industries that are fragmented among many small competitors, have high fixed costs, provide undifferentiated (commodity-like) products, or have high exit barriers usually experience more intense rivalry than industries without these characteristics.

SWOT

BL possesses many strengths, including its prestigious corporate image associated with the high-quality standard of its products. The firm makes use of new technologies, as well as offering an online shopping platform through its website and has a strong media presence across most platforms. Its star products, the handbags and accessories, contribute to the high increase in sales over holiday periods. The brand touches middle ground between high-street and luxury, thereby accessing the unknown sector of affordable luxury. The firm relies on loyal, long-term customers as well as occasional clients, a number which is ever increasing due to the company's striving to follow the internationalisation strategy of Inditex.

The brand, of course, is also subject to various weaknesses. Despite having the star products in the form of handbags and accessories, the sales in clothes is severely lacking. Additionally, the firm often releases new collections on a sporadic and infrequent basis, and so customers are perhaps not able to predict new pieces and purchase these with ease. Furthermore, despite its strong presence on social media, the recognition of its app is almost null, as it has scarcely any downloads. Through the app, customers are able to purchase products quickly, and so this may be causing sales to be not quite as high as they ought to be. The fact that BL pertains to the fashion industry means it is highly dependent on macroeconomics and the health of the market – the fashion sector suffered greatly at the end of 2013 due to instability in the Spanish economy.

As for opportunities, there is still growing demand in the BL brand and in its products. The improving Spanish economy is a source of confidence for the brand, as is the new trend in outlets and pop-up stores. Moving on to technology, blogs are the most popular they have ever been, displaying the newest trends in fashion and accessories. BL also has the possibility of launching a broader range of products and could target homeware, for example. Finally, the opportunities to expand on a more international spectrum is a clear source of long-term profits for the brand.

Regarding the threats posing BL, we mentioned that the state of the economy is a huge factor. Increasing competition within the fashion industry is ever increasing, with the rise of affordable and good quality products emerging from brands such as Brandy Melville. This is due to the fact that BL has few differentiating factors between themselves and their competitors, name, the quality of the leather, the attractive designs of the product and the emblematic greyhound logo. Following this, fakes and imitations also pose a threat to the firm.

Company analysis

Financial modelling

The DCF process I went through was as follows. I gathered BL's balance sheet and income statement for years 2012 to 2015 and linked these with a few hypotheses I wanted to make, in order to forecast the balance sheet and income statement for years 2016 to 2020 inclusive. I saw that the short-term economic future looked promising, as did the company's situation considering its expansion plans, and so I took into account a 10% change in sales for 2016, before implementing decreasing figures for the next years and settling at a 5% growth for 2019 and 2020. This seemed sensible, considering the inevitable growth stunting that would take place in upcoming years. I decided to account for the depreciation expenses in the income statement by decreasing these from year to year on a 14% basis. With more sales growth, it made sense to increase the number of employees, which can be seen in the table below.

Figure 8

HYPOTHESES									
% sales	**2012**	**2,013**	**2,014**	**2,015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
A. P&L HYPOTHESES									
Total change in sales	**18.4%**	**4%**	**13%**	**10%**	**10%**	**9%**	**8%**	**5%**	**5%**
Cost of goods sold	**43.8%**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**
Number of employees	418	465	495	530	560	585	605	620	635
Change in number of employees	19%	0	0	0	0	0	0	0	0
Mean wages per employee (eur thousands)	-32,013,392.8	(32,011,140)	(34,065,798)	(34,300,585)	(34,986,597)	(35,336,463)	(35,689,827)	(36,046,725)	(36,767,660)
Change in mean wages per employee	-2%	(0)	0	0	0	0	0	0	0
Employee expenses	18.8%	0	0	0	0	0	0	0	0
Change in employee expenses	**17.2%**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
General costs/ sales	**14.8%**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Depreciation	14.3%	0	0	0	**0**	**0**	**0**	**0**	**0**
Tax expenses	**-24%**	**(0)**	**(1)**	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**
B. BALANCE SHEET HYPOTHESES									
Debtors /Revenue	**11.7%**	**0**	**0**	**0**	**16%**	**16%**	**16%**	**16%**	**16%**
Inventory / Material costs	**-54.0%**	**-66%**	**-58%**	**-40%**	**-65%**	**-62%**	**-60%**	**-62%**	**-63%**
Payables / Material costs	**-16.8%**	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**
Capex: Material, Intangible, I. Financial					**(3,400,000)**	**(3,400,000)**	**(3,400,000)**	**(3,400,000)**	**(3,400,000)**
Dividends					**0**	**0**	**0**	**0**	**2,000,000**

(Source: produced by the author)

By taking these factors into account, I was able to use these hypotheses as well as the data supplied for years 2012 to 2015 in order to forecast the balance sheet and income statement for BL for years 2016 to 2020, as shown below.

Figure 9

BALANCE SHEET									
EUR	**2012**	**2013**	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
ASSETS									
PPE	15,823,109.3	18,798,202	17,231,845	17,102,303	17,750,737	18,408,939	19,090,115	19,775,800	20,514,566
Other non-current assets	0.0	0	0	0	0	0	0	0	0
Noncurrent assets	**15,823,109.3**	**18,798,202**	**17,231,845**	**17,102,303**	**17,750,737**	**18,408,939**	**19,090,115**	**19,775,800**	**20,514,566**
Cash	525,948.5	529,734	515,375	745,207	819,728	893,503	964,983	1,013,233	2,618,776
Debtors	8,310,809.9	9,006,108	12,016,831	15,133,700	16,647,070	18,145,306	19,596,931	20,576,777	21,605,616
Inventory	16,838,652.4	22,362,686	24,126,949	36,194,010	33,747,618	35,184,810	36,668,484	40,060,222	42,810,207
Other current assets	4,832,697.2	4,027,754	4,069,951	7,670,104	7,734,507	7,738,133	7,758,360	7,781,922	7,657,456
Current assets	**30,508,107.9**	**35,926,281**	**40,729,107**	**59,743,021**	**59,218,575**	**61,961,752**	**64,988,758**	**69,432,154**	**74,692,055**
Total assets	**46,331,217.3**	**54,724,483**	**57,960,952**	**76,845,324**	**76,969,312**	**80,370,691**	**84,078,873**	**89,207,954**	**95,206,621**
LIABILITIES AND EQUITY									
Minority interests	0.0	0	0	0	0	0	0	0	0
Capital	5,000,004.0	5,000,004	5,000,004	5,000,004	5,000,004	5,000,004	5,000,004	5,000,004	5,000,004
Other equity	23,151,854.2	27,340,123	27,252,669	32,370,005	36,687,084	41,491,188	47,797,462	54,638,896	58,186,772
Equity	**28,151,858.2**	**32,340,127**	**32,252,673**	**37,370,009**	**41,687,088**	**46,491,192**	**52,797,466**	**59,638,900**	**63,186,776**
Long-term debt	0.0	0	6,125,000	4,375,000	4,630,225	3,677,225	2,549,285	1,832,623	3,327,532
Other non-current liabilities	0.0	154,459	154,459	842,770	498,614	508,587	499,607	509,599	519,791
Non-current liabilities	**0.0**	**154,459**	**6,279,459**	**5,217,770**	**5,128,839**	**4,185,811**	**3,048,892**	**2,342,222**	**3,847,323**
Payables	7,003,608.3	10,170,337	8,297,641	14,712,358	10,975,055	12,026,761	12,239,540	13,620,217	14,291,709
Other current liabilities	7,392,667.4	6,157,864	7,843,510	9,869,040	8,856,275	9,362,657	9,109,466	8,586,062	8,847,764
Short-term debt	3,783,083.3	5,901,696	3,287,670	9,676,147	10,322,056	8,304,269	6,883,509	5,020,554	5,033,049
Current liabilities	**18,179,359.0**	**22,229,897**	**19,428,821**	**34,257,545**	**30,153,385**	**29,693,687**	**28,232,516**	**27,226,833**	**28,172,522**
Total equity and liabilities	**46,331,217.3**	**54,724,483**	**57,960,952**	**76,845,324**	**76,969,312**	**80,370,691**	**84,078,873**	**89,207,954**	**95,206,621**
Check	**0.0**	**(0)**	**0**	**0**	**(0)**	**0**	**0**	**(0)**	**0**
Net debt	**3,257,134.8**	**5,371,962**	**8,897,295**	**13,305,940**	**14,132,553**	**11,087,991**	**8,467,810**	**5,839,944**	**5,741,805**
Debt / EBITDA	0.2	0	1	2	1	1	1	0	0
Debt / Equity	0.1	0	0	0	0	0	0	0	0

(Source: produced by the author)

Figure 10

INCOME STATEMENT									
EUR	**2012**	**2,013**	**2,014**	**2,015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
REVENUE	**71,164,763.1**	**74,032,511**	**83,366,782**	**91,799,182**	**100,979,100**	**110,067,219**	**118,872,597**	**124,816,227**	**131,057,038**
% change	18%	0	0	0	0	0	0	0	0
Material costs	31,166,553.5	34,052,970	41,266,206	48,254,207	51,531,929	57,013,298	61,118,874	64,413,949	67,509,103
Cost of employees	13,381,598.2	14,885,180	16,862,570	18,179,310	19,592,494	20,671,831	21,592,345	22,348,970	23,347,464
General costs and others	10,544,846.9	11,878,831	16,172,114	18,522,096	19,981,494	21,353,041	23,291,749	24,335,342	25,615,632
Extraordinary costs	0.0	0	0	0	0	0	0	0	0
Total costs	**55,092,998.6**	**60,816,981**	**74,300,890**	**84,955,613**	**91,105,917**	**99,038,169**	**106,002,969**	**111,098,261**	**116,472,198**
% change	12%	0	0	0	0	0	0	0	0
Recurrent EBITDA	**16,071,764.5**	**13,215,531**	**9,065,892**	**6,843,569**	**9,873,184**	**11,029,051**	**12,869,628**	**13,717,966**	**14,584,840**
% sales	*22.6%*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
% change	47%	(0)	(0)	(0)	0	0	0	0	0
Extraordinary costs	0.0	0	0	0	0	0	0	0	0
Accounting EBITDA	**18,341,668.3**	**13,215,531**	**9,065,892**	**6,843,569**	**9,873,184**	**11,029,051**	**12,869,628**	**13,717,966**	**14,584,840**
% sales	*173.9%*	*1*	*1*	*0*	*0*	*1*	*1*	*1*	*1*
Depreciation expense	2,269,903.8	2,448,377	2,540,816	2,411,566	2,751,566	2,741,798	2,718,824	2,714,315	2,661,234
EBIT	**16,071,764.5**	**10,767,154**	**6,525,076**	**4,432,003**	**7,121,618**	**8,287,253**	**10,150,804**	**11,003,651**	**11,923,606**
% sales	*22.6%*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Financial costs	(1,267,318.1)	(928,784)	(5,274,448)	(2,140,486)	(812,096)	(754,146)	(599,600)	(456,007)	(425,985)
Financial revenue	1,119,940.7	231,213	214,674	6,407,689	39,123	42,831	46,462	49,455	90,800
Gains/ losses on disposal of ownership inte	0.0	0	0	0	0	0	0	0	0
Earnings	**15,924,387.2**	**10,069,584**	**1,465,302**	**8,699,206**	**6,348,645**	**7,575,938**	**9,597,666**	**10,597,099**	**11,588,422**
% sales	*22.4%*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Other extraordinaries	0.0	0	0	0	0	0	0	0	0
EBT	**15,924,387.2**	**10,069,584**	**1,465,302**	**8,699,206**	**6,348,645**	**7,575,938**	**9,597,666**	**10,597,099**	**11,588,422**
% sales	*22.4%*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Taxation	(3,882,805.5)	(2,866,666)	(1,552,757)	(3,581,870)	(2,031,566)	(2,771,834)	(3,291,392)	(3,755,665)	(4,040,545)
Minority interests	0.0	0	0	0	0	0	0	0	0
Net profit	**12,041,581.7**	**7,202,918**	**(87,454)**	**5,117,336**	**4,317,079**	**4,804,104**	**6,306,274**	**6,841,434**	**7,547,877**
% sales	*16.9%*	*10%*	*0%*	*6%*	*4.28%*	*4.36%*	*5.31%*	*5.48%*	*5.76%*

(Source: produced by the author)

These forecasted statements appeared to be plausible, as the growth in revenue for 2016 appeared to be increasing at the same 10% augmentation as that of the preceding year. Whilst the revenues continued to show positive growth for the following four years, the rate of growth is expected to decline subtly in percentage points from year to year, until it reached the expected 131,057,038 € for 2020.

FCFF Valuation

As I wanted to value the firm as a whole, and not just the equity, I decided to perform an FCFF valuation. In order to proceed with this, I compiled the company's FCFF, as seen below. With this, I was able to reach a present value of the FCFF of 1,518,326 €. The WACC I used for this estimate was 5.62%. I reached this value by estimating a cost of debt of 5.42%, by dividing BL's financial costs of 2015 by the total liabilities of the same year. As for the cost of equity, I deployed a 10-year Spanish government bond as the risk-free rate – this seemed appropriate as BL is predominantly based in Spain – with the value 0.012. The return of the market I took as 0.07, and so all that remained was the beta of the firm. Being a private firm, this beta was unavailable to me, and so I endeavoured to unlever H&M's beta of 0.79 to produce an unlevered beta of 0.72. I then levered this beta again to achieve a hypothetical beta for BL of 0.81. Upon examination, it seemed this was a reasonable beta to attribute to BL, as it would mean that it moves slightly more in tandem with the market – a promising result considering the level of risk incorporated in the firm. It is also an acceptable figure as the betas of most large fashion firms are below 1, whilst those with betas above 1 tend to be more involved with technology or science. As a way of gauging the value of the firm after 2020, I went on to estimate the terminal value of BL using a growth rate of 2%, leading me to a figure of 99,079,318 €. Whilst this looked promising, I went on to calculate the present value of this figure, which came to 75,384,697 €. This then resulted in a figure of 89,965,628 € for the enterprise value, and consequently one of 75,914,481 € for the equity value, as is demonstrated below.

Figure 11

	2016	2017	2018	2019	2020
	1	2	3	4	5
ebit	7,121,618	8,287,253	10,150,804	11,003,651	11,923,606
ebit*(1-t)	5,056,348	5,883,950	7,207,071	7,812,592	8,465,761
+dep	2,751,566	2,741,798	2,718,824	2,714,315	2,661,234
-capex	- 3,400,000	- 3,400,000	- 3,400,000	- 3,400,000	- 3,400,000
- nwc	- 2,804,282	- 1,883,721	- 2,722,520	- 2,990,908	- 3,107,332
fcff	1,603,633	3,342,027	3,803,375	4,136,000	4,619,663
pv fcff	1,518,326	2,995,918	3,228,117	3,323,691	3,514,880
TV	99,079,318				
NPV fcff	14,580,932				
PV TV	75,384,697				
EV	89,965,628				
Net Debt	14,051,147				
Equity	75,914,481				
WACC	5.62%				
D/D+E	0.15				
E/D+E	0.85				

(Source: produced by the author)

Relative valuation

I then proceeded to calculate the multiples. I took the average PER and EV/EBITDA ratios of seven global fashion and accessories firms as the multiplier to estimate the value of BL for 2016 and 2017. With the PER, I estimated BL to be valued at 82,086,165 € in 2016, whilst for 2017 it is expected to be 80,983,468 €. Using the EV/EBITDA ratio, however, I found that BL's valuation was very

optimistic indeed, standing at 99,067,327.52 € for 2016 and at 99,075,405 € for 2017.

Figure 12

	PER 2016	PER 2017	EV/EBITDA 2016	EV/EBITDA 2017
Inditex	28.8	25.3	16.6	14.7
H&M	22.1	20.6	12.8	11.7
Pandora	18.8	14.8	14.1	11.4
ABF	29.6	25.5	15.9	14.2
Debenhams	9.4	9	5	4.8
M&S	12.5	11.7	6.8	6.4
Next	11.9	11.1	9	8.6
Average	**19.01**	**16.86**	**11.46**	**10.26**

(Source: J.P. Morgan 2016)

Figure 13

	PER 2016	PER 2017	EV/EBITDA 2016	EV/EBITDA 2017
BIMBA Y LOLA	82,086,165	80,983,468	99,067,327.52	99,075,405

(Source: produced by the author)

As we saw in previous sections, relative valuation is very useful to approximate the value of a firm with respect to its competitors, whilst gaining insight into how the market perceives the worth of BL to be. It is riveting to note the difference in "accuracy" between the PER and the EV/EBITDA ratios. Let us look at these closely: the PER values for 2016 and 2017 give us figures that are 8% and 6% larger, respectively, than the equity value calculated by DCF valuation. On the other hand, the values generated by the EV/EBITDA ratios give us a huge 23% figure over the equity value we had previously estimated through DCF. This allows us to see how the market ascertains the value of BL: using the net profit to determine the PER gives us a much more modest approximation of BL's value than implementing the EBITDA for the EV/EBITDA ratio. In any case, it seems as though the market may just be slightly overvaluing BL, given that some of the firms in the peer group appear to be slacking slightly on the revenues front.

Conclusion

All in all, we can draw several conclusions from this papers. Although discount cash flow valuation and relative valuations aren't the only methods we can apply (we can use option pricing to price warrants and patents, for example), they are certainly of great use when examining the value of a firm. DCF valuation gives us the perfect insight to the intrinsic value of a company, drawing on its fundamental financial organs to diagnose its health and determine whether any symptoms are arising. With relative valuation, this can be more helpful if we want to compare the state of our firm with relation to the market as whole, including all the firms that it encompasses.

Whilst we can certainly run into a few problems when it comes to valuing a private firm, there are many methods we can apply in order to substitute for the loss of known values that we would have had with a publicly-listed firm.

Given that the valuation for *Bimba y Lola* was grounded on the quest to determine the intrinsic value, I performed a DCF valuation first, but also calculated a few multiples with which to compare the company on an overall market level to their group peers. Before embarking on this mission, however it was fundamental to perform an industry analysis, so as to gauge how the overall market performs with respect to clothing apparel and accessories. It was also necessary to highlight *Bimba y Lola*'s key strengths and weaknesses, so as to gauge whether any anomalies were apt. Finally, the competitive analysis was crucial in order to compile a small peer group with which to relate the multiples of *Bimba y Lola*, thereby obtaining a true sense of the company's worth. This analysis enabled us to gauge whether the market was overvaluing the worth of *Bimba y Lola*, or if our DCF valuation seemed appropriate. We concluded that the relative valuation produced figures that were far too high to be acceptable for a relatively small firm, compared to the likes of Inditex, and plumped for the equity value of 75,914,481 €, which we obtained through the DCF valuation. This seemed much more appropriate as, although we saw that the firm had plans of global expansion, we needed to remind ourselves that the product variety and supply wasn't gargantuan, but rather much more on the modest side, and that the greatest revenues of sales are obtained from just one country: Spain. We can therefore conclude that the reasonable enterprise value for *Bimba y Lola* is 89,965,628 € and, as we said before, the equity value is appropriately valued at 75,914,481 €.

Although much subjectivity and bias is implemented with valuation, this is absolutely inevitable and we cannot have it any other way. Of course, there are certain methods we can deploy which limit our use of judgement, such as through relative valuation, but in the end, value is in the eye of the beholder and, even when we have seemingly objective figures at our disposal, these figures will, doubtless, have been tweaked either through accounting regulations or for the analysts own gains.

Bibliography

Beccalli, E. and Frantz, P. (2014) *Valuation and Securities Analysis*. London: Department of Accounting, LSE.

Bowman, R.G. 2001, "Estimating market risk premium", *JASSA,* no. 3, pp. 10-13.

Damodaran, A., 2012. *Investment Valuation, University Edition.* 3rd Edition ed. New Jersey: Wiley.

Hitchner, J.R. (2003) *Financial valuation handbook: Applications and models*. New York: John Wiley & Sons.

Koller, T., Goedhart, M. & Wessels, D., 2016. *Measuring and Managing the Value of Companies, University Edition.* 6th Edition ed. New Jersey: Wiley.

Marshall, A., 1890. *Principles of Economics.* New York: Macmillan.

Morgan, J.P., 2016. *Europe Equity Research: Hennes & Mauritz.* Cazenove.

Morgan, J.P., 2016. *Europe Equity Research: Inditex.* Cazenove.

Palepu, K., Peek, E. and Healy, P. (2013) *Business analysis and valuation*. Andover: Cengage Learning.

Penman, S. (2001) *Financial statement analysis and security valuation (Mcgraw-Hill international editions: Fin.*. United States: McGraw Hill Higher Education.

Pinto, J.E., Rath, R.D., Henry, E., Robinson, T.R. and Stowe, J.D. (2010) *Equity asset valuation*. 2nd edn. United Kingdom: Wiley, John & Sons.

Porter, M. E. 'The Five Competitive Forces that Shape Strategy', *Harvard Business Review*. January 2008

Williams, J.B.B. (1997) *The theory of investment value (contrary opinion library).* Burlington, VT: Fraser Pub. Co.

Appendices

Appendix 1.1: Key financials and employees. Source: Sabi

KEY FINANCIALS & EMPLOYEES

BIMBA & LOLA SL (Source: SABI)

Unconsolidated Accounts	*28/02/2011* *EUR*	*29/02/2012* *EUR*	*28/02/2013* *EUR*	*28/02/2014* *EUR*	*28/02/2015* *EUR*
	12 months Unqualif. IFRS detailed	12 months Unqualif. IFRS detailed	12 months Unqualif. IFRS detailed	12 months Unqualif. IFRS detailed	12 months Unqualif. IFRS detailed
Operating revenue / turnover	60,124,373	71,164,763	74,032,511	83,366,782	91,799,182
P/L before tax	9,164,651	13,654,483	10,069,584	1,465,302	8,699,206
Net income	6,620,568	9,771,678	7,202,918	-87,455	5,117,336
Total assets	37,342,784	46,331,217	54,724,483	57,960,952	76,845,324
Shareholders' equity	20,236,958	28,151,858	32,340,127	32,252,673	37,370,009
Economic profitability (%)	24.54	29.47	18.40	2.53	11.32
Financial profitability (%)	45.29	48.50	31.14	4.54	23.28
General liquidity	1.56	1.68	1.62	2.10	1.74
Indebtness (%)	45.81	39.24	40.90	44.35	51.37
Number of employees	350	418	465	495	530

Appendix 1.2: Balance sheet. Source: Sabi

BALANCE SHEET

BIMBA & LOLA SL (Source: SABI)

Unconsolidated Accounts	*28/02/2011 EUR*	*29/02/2012 EUR*	*28/02/2013 EUR*	*28/02/2014 EUR*	*28/02/2015 EUR*
	12 months Unqualif. IFRS	12 months Unqualif. IFRS	12 months Unqualif. IFRS	12 months Unqualif. IFRS	12 months Unqualif. IFRS
Fixed Assets	13.628.602	15.823.109	18.798.202	17.231.845	17.102.303
Intangible fixed	1.571.407	1.306.495	2.274.877	1.896.191	1.890.854
Tangible fixed	11.453.719	12.950.697	12.710.129	12.639.611	12.444.819
Other fixed assets	603.476	1.565.917	3.813.196	2.696.043	2.766.630
Current assets	23.714.182	30.508.108	35.926.281	40.729.107	59.743.021
Stocks	12.828.149	16.838.652	22.362.686	24.126.949	36.194.010
Debtors	5.762.202	8.310.810	9.006.108	12.016.831	15.133.700
Other current	5.123.831	5.358.646	4.557.488	4.585.327	8.415.311
Cash & cash	491.246	525.948	529.734	515.375	745.207
Total assets	37.342.784	46.331.217	54.724.483	57.960.952	76.845.324
Shareholders funds	20.236.958	28.151.858	32.340.127	32.252.673	37.370.009
Capital	5.000.004	5.000.004	5.000.004	5.000.004	5.000.004
Other shareholders	15.236.954	23.151.854	27.340.123	27.252.669	32.370.005
Non current liabilities	1.931.106	0	154.459	6.279.459	5.217.770
Long-term debt	1.931.018	0	0	6.125.000	4.375.000
Other non-current liabilities	88	0	154,459	154,459	842,770
Provisions	0	0	0	0	0
Current liabilities	15.174.720	18.179.359	22.229.897	19.428.821	34.257.545
Loans	3.800.385	3.783.083	5.901.696	3.287.670	9.676.147
Creditors	5.518.534	7.003.608	10.170.337	8.297.641	14.712.358
Other current	5.855.801	7.392.667	6.157.864	7.843.510	9.869.040
Total shareh. funds	37.342.784	46.331.217	54.724.483	57.960.952	76.845.324
Working capital	13.071.817	18.145.854	21.198.456	27.846.139	36.615.352
Number of	350	418	465	495	530
Net debt	5,240,157	3,257,135	5,371,962	8,897,295	13,305,940
Equity	20,236,958	28,151,858	32,340,127	32,252,673	37,370,009
Total liabilities	17,105,826	18,179,359	22,384,356	25,708,279	39,475,315

Appendix 1.3: European ratios. Source: Sabi

EUROPEAN RATIOS

BIMBA & LOLA SL (Source: SABI)

Unconsolidated Accounts	*28/02/201 EUR*	*29/02/201 EUR*	*28/02/201 EUR*	*28/02/201 EUR*	*28/02/201 EUR*
	12 months Unqualif. IFRS	12 months Unqualif. IFRS	12 months Unqualif. IFRS	12 months Unqualif. IFRS	12 months Unqualif. IFRS
A. Profitability					
Return on Shareholders	45.29	48.50	31.14	4.54	23.28
Return on Capital Employed	44.18	49.86	31.44	5.23	21.69
Return on Total Assets (%)	24.54	29.47	18.40	2.53	11.32
Profit Margin (%)	15.24	19.19	13.60	1.76	9.48
B. Operations					
Net Assets Turnover	2.71	2.53	2.28	2.16	2.16
Interest Cover	14.14	36.24	73.13	11.90	8.27
Stock Turnover	4.69	4.23	3.31	3.46	2.54
Collection period (days)	35	42	44	52	59
Credit Period (days)	33	35	49	36	58
C. Structure					
Current Ratio	1.56	1.68	1.62	2.10	1.74
Liquidity Ratio	0.72	0.75	0.61	0.85	0.69
Shareholders Liquidity Ratio	10.48	n.s.	209.38	5.14	7.16
Solvency Ratio (%)	54.19	60.76	59.10	55.65	48.63
Gearing (%)	28.32	13.44	18.73	29.66	39.86
D. Per employee					
Profit per Employee (Th.)	26	33	22	3	16
Oper. Rev. per Employee	172	170	159	168	173
Costs of employee / Oper.	18.99	18.80	20.11	20.23	19.80
Aver. Cost of Empl. / Year	33	32	32	34	34
Share Funds per Employee	58	67	70	65	71
Work. Capital per Employee	37	43	46	56	69
Total Assets per Employee	107	111	118	117	145

Appendix 1.4: Income statement. Source: Sabi

INCOME STATEMENT

BIMBA & LOLA SL (Source: SABI)

Unconsolidated Accounts	*28/02/2011* *EUR*	*29/02/2012* *EUR*	*28/02/2013* *EUR*	*28/02/2014* *EUR*	*28/02/2015* *EUR*
	12 months Unqualif. IFRS	12 months Unqualif. IFRS	12 months Unqualif. IFRS	12 months Unqualif. IFRS	12 months Unqualif. IFRS
Operating revenue / turnover	60,124,373	71,164,763	74,032,511	83,366,782	91,799,182
Sales	59,968,730	70,862,911	73,592,162	82,927,175	91,433,677
Cost of goods sold	-	-	-	-	-
Gross profit	-	-	-	-	-
Other operating expenses	-	-	-	-	-
Operating P/L	8,911,334	13,801,861	10,767,154	6,525,076	4,432,003
Financial revenue	1,507,807	1,119,941	231,213	214,674	6,407,689
Financial expenses	-1,254,490	-1,267,318	-928,784	-5,274,448	-2,140,486
Financial P/L	253,317	-147,377	-697,571	-5,059,774	4,267,203
P/L before tax	9,164,651	13,654,483	10,069,584	1,465,302	8,699,206
Taxation	-2,544,083	-3,882,805	-2,866,666	-1,552,757	-3,581,870
P/L after tax	6,620,568	9,771,678	7,202,918	-87,455	5,117,336
Extraordinary revenue	-	-	-	-	-
Extraordinary expenses	-	-	-	-	-
Extraordinary P/L	-	-	-	-	-
P/L for period	6,620,568	9,771,678	7,202,918	-87,455	5,117,336
Material costs	27,349,773	31,166,553	34,052,970	41,266,206	48,254,207
Cost of employees	11,418,362	13,381,598	14,885,180	16,862,570	18,179,310
Depreciation	2,049,156	2,269,904	2,448,377	2,540,816	2,411,566
Interest paid	630,073	380,823	147,231	548,465	536,163
Cash flow	8,669,724	12,041,582	9,651,295	2,453,361	7,528,902
Added value	23,262,242	29,686,808	27,550,371	21,417,153	29,826,245
EBT	8,281,260	13,421,038	10,619,923	5,976,612	3,895,840
EBIT	8,911,334	13,801,861	10,767,154	6,525,076	4,432,003
EBITDA	10,960,490	16,071,765	13,215,531	9,065,892	6,843,569

Appendix 1.5: Forecasted balance sheet. Source: author

BALANCE SHEET					
EUR	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
ASSETS					
PPE	17,750,737	18,408,939	19,090,115	19,775,800	20,514,566
Other non-current assets	0	0	0	0	0
Noncurrent assets	**17,750,737**	**18,408,939**	**19,090,115**	**19,775,800**	**20,514,566**
Cash	819,728	893,503	964,983	1,013,233	2,618,776
Debtors	16,647,070	18,145,306	19,596,931	20,576,777	21,605,616
Inventory	33,747,618	35,184,810	36,668,484	40,060,222	42,810,207
Other current assets	7,734,507	7,738,133	7,758,360	7,781,922	7,657,456
Current assets	**59,218,575**	**61,961,752**	**64,988,758**	**69,432,154**	**74,692,055**
Total assets	**76,969,312**	**80,370,691**	**84,078,873**	**89,207,954**	**95,206,621**
LIABILITIES AND EQUITY					
Minority interests	0	0	0	0	0
Capital	5,000,004	5,000,004	5,000,004	5,000,004	5,000,004
Other equity	36,687,084	41,491,188	47,797,462	54,638,896	58,186,772
Equity	**41,687,088**	**46,491,192**	**52,797,466**	**59,638,900**	**63,186,776**
Long-term debt	4,630,225	3,677,225	2,549,285	1,832,623	3,327,532
Other non-current liabilities	498,614	508,587	499,607	509,599	519,791
Non-current liabilities	**5,128,839**	**4,185,811**	**3,048,892**	**2,342,222**	**3,847,323**
Payables	10,975,055	12,026,761	12,239,540	13,620,217	14,291,709
Other current liabilities	8,856,275	9,362,657	9,109,466	8,586,062	8,847,764
Short-term debt	10,322,056	8,304,269	6,883,509	5,020,554	5,033,049
Current liabilities	**30,153,385**	**29,693,687**	**28,232,516**	**27,226,833**	**28,172,522**
Total equity and liabilities	**76,969,312**	**80,370,691**	**84,078,873**	**89,207,954**	**95,206,621**
Check	**(0)**	**0**	**0**	**(0)**	**0**
Net debt	**14,132,553**	**11,087,991**	**8,467,810**	**5,839,944**	**5,741,805**
Debt / EBITDA	1	1	1	0	0
Debt / Equity	0	0	0	0	0

Appendix 1.6: Forecasted balance sheet calculations. Source: author

BALANCE SHEET					
EUR	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
ASSETS					
PPE	=N11-O111-O74	=O11-P111-P74	=P11-Q111-Q74	=Q11-R111-R74	=R11-S111-S74
Other non-current assets	=N12-O116	=O12-P116	=P12-Q116	=Q12-R116	=R12-S116
Noncurrent assets	**=SUM(O11:O12)**	**=SUM(P11:P12)**	**=SUM(Q11:Q12)**	**=SUM(R11:R12)**	**=SUM(S11:S12)**
Cash	=+N15*(1+O55)	=+O15*(1+P55)	=+P15*(1+Q55)	=+Q15*(1+R55)	=+R15*(1+S55)+1554882
Debtors	=O172*O54	=P172*P54	=Q172*Q54	=R172*R54	=S172*S54
Inventory	=O174*-(O57)	=P174*-(P57)	=Q174*-(Q57)	=R174*-(R57)	=S174*-(S57)
Other current assets	=+N18*(1+0.01)-12298	=+(O18+N18)/2+35827	=+(P18+O18)/2+22040	=+(Q18+P18)/2+33676	=+(R18+Q18)/2-112685
Current assets	**=SUM(O15:O18)+269652**	**=SUM(P15:P18)**	**=SUM(Q15:Q18)**	**=SUM(R15:R18)**	**=SUM(S15:S18)**
Total assets	**=O13+O19**	**=P13+P19**	**=Q13+Q19**	**=R13+R19**	**=S13+S19**
LIABILITIES AND EQUITY					
Minority interests	=N25-O89	=O25-P89	=P25-Q89	=Q25-R89	=R25-S89
Capital	=N26+O125	=O26+P125	=P26+Q125	=Q26+R125	=R26+S125
Other equity	=N27+O90+O124	=O27+P90+P124	=P27+Q90+Q124	=Q27+R90+R124	=R27+S90+S124
Equity	**=SUM(O25:O27)**	**=SUM(P25:P27)**	**=SUM(Q25:Q27)**	**=SUM(R25:R27)**	**=SUM(S25:S27)**
Long-term debt	=N30+O132+255224.8	=O30+P132-953000	=P30+Q132-1127940	=Q30+R132-716662	=R30+S132+1494909
Other non-current liabilities	=+(M31+N31)/2	=+O31*(1+0.02)	=+P31*(1+0.02)-19151.6	=+Q31*(1+0.02)	=+R31*(1+0.02)
Non-current liabilities	**=SUM(O30:O31)**	**=SUM(P30:P31)**	**=SUM(Q30:Q31)**	**=SUM(R30:R31)**	**=SUM(S30:S31)**
Payables	=O176*-(O61-O58)	=P176*-(P61-P58)	=Q176*-(Q61-Q58)	=R176*-(R61-R58)	=S176*-(S61-S58)
Other current liabilities	=+(M35+N35)/2	=+(N35+O35)/2	=+(O35+P35)/2	=+(P35+Q35)/2-650000	=+(Q35+R35)/2
Short-term debt	=N36+645909	=+O36-2017787	=+P36-1420760	=+Q36-1862955	=+R36+12495
Current liabilities	**=SUM(O34:O36)**	**=SUM(P34:P36)**	**=SUM(Q34:Q36)**	**=SUM(R34:R36)**	**=SUM(S34:S36)**
Total equity and liabilities	**=O37+O32+O28**	**=P37+P32+P28**	**=Q37+Q32+Q28**	**=R37+R32+R28**	**=S37+S32+S28**
Check	**=O21-O39**	**=P21-P39**	**=Q21-Q39**	**=R21-R39**	**=S21-S39**
Net debt	**=-O15+O36+O30**	**=-P15+P36+P30**	**=-Q15+Q36+Q30**	**=-R15+R36+R30**	**=-S15+S36+S30**
Debt / EBITDA	=O42/O66	=P42/P66	=Q42/Q66	=R42/R66	=S42/S66
Debt / Equity	=O42/O28	=P42/P28	=Q42/Q28	=R42/R28	=S42/S28

Appendix 1.7: Forecasted income statement. Source: author

INCOME STATEMENT					
EUR	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
REVENUE	**100,979,100**	**110,067,219**	**118,872,597**	**124,816,227**	**131,057,038**
% change	0.10	0.09	0.08	0.05	0.05
Material costs	51,531,929	57,013,298	61,118,874	64,413,949	67,509,103
Cost of employees	19,592,494	20,671,831	21,592,345	22,348,970	23,347,464
General costs and others	19,981,494	21,353,041	23,291,749	24,335,342	25,615,632
Extraordinary costs	0	0	0	0	0
Total costs	**91,105,917**	**99,038,169**	**106,002,969**	**111,098,261**	**116,472,198**
% change	0	0	0	0	0
Recurrent EBITDA	**9,873,184**	**11,029,051**	**12,869,628**	**13,717,966**	**14,584,840**
% sales	*0*	*0*	*0*	*0*	*0*
% change	0	0	0	0	0
Extraordinary costs	0	0	0	0	0
Accounting EBITDA	**9,873,184**	**11,029,051**	**12,869,628**	**13,717,966**	**14,584,840**
% sales	*0*	*1*	*1*	*1*	*1*
Depreciation expense	2,751,566	2,741,798	2,718,824	2,714,315	2,661,234
EBIT	**7,121,618**	**8,287,253**	**10,150,804**	**11,003,651**	**11,923,606**
% sales	*0*	*0*	*0*	*0*	*0*
Financial costs	(812,096)	(754,146)	(599,600)	(456,007)	(425,985)
Financial revenue	39,123	42,831	46,462	49,455	90,800
Gains/ losses on disposal of ownership inte	0	0	0	0	0
Earnings	**6,348,645**	**7,575,938**	**9,597,666**	**10,597,099**	**11,588,422**
% sales	*0*	*0*	*0*	*0*	*0*
Other extraordinaries	0	0	0	0	0
EBT	**6,348,645**	**7,575,938**	**9,597,666**	**10,597,099**	**11,588,422**
% sales	*0*	*0*	*0*	*0*	*0*
Taxation	(2,031,566)	(2,771,834)	(3,291,392)	(3,755,665)	(4,040,545)
Minority interests	0	0	0	0	0
Net profit	**4,317,079**	**4,804,104**	**6,306,274**	**6,841,434**	**7,547,877**
% sales	*4.28%*	*4.36%*	*5.31%*	*5.48%*	*5.76%*

Appendix 1.8: Forecasted income statement calculations. Source: author

INCOME STATEMENT					
=C8	**=O$8**	**=P$8**	**=Q$8**	**=R$8**	**=S$8**
REVENUE	**=N54*(1+O150)**	**=O54*(1+P150)**	**=P54*(1+Q150)**	**=Q54*(1+R150)**	**=R54*(1+S150)**
% change	=O54/N54-1	=P54/O54-1	=Q54/P54-1	=R54/Q54-1	=S54/R54-1
Material costs	=O54*O152	=P54*P152	=Q54*Q152	=R54*R152	=S54*S152
Cost of employees	=-O154*O156/1000	=-P154*P156/1000	=-Q154*Q156/1000	=-R154*R156/1000	=-S154*S156/1000
General costs and others	=O54*O161	=P54*P161	=Q54*Q161	=R54*R161	=S54*S161
Extraordinary costs	0	0	0	0	0
Total costs	**=SUM(O57:O60)**	**=SUM(P57:P60)**	**=SUM(Q57:Q60)**	**=SUM(R57:R60)**	**=SUM(S57:S60)**
% change	=O61/N61-1	=P61/O61-1	=Q61/P61-1	=R61/Q61-1	=S61/R61-1
Recurrent EBITDA	**=O54-O61+O64**	**=P54-P61+P64**	**=Q54-Q61+Q64**	**=R54-R61+R64**	**=S54-S61+S64**
% sales	*=O66/O54*	*=P66/P54*	*=Q66/Q54*	*=R66/R54*	*=S66/S54*
% change	=O66/N66-1	=P66/O66-1	=Q66/P66-1	=R66/Q66-1	=S66/R66-1
Extraordinary costs	=-O60	=-P60	=-Q60	=-R60	=-S60
Accounting EBITDA	**=O66+O70**	**=P66+P70**	**=Q66+Q70**	**=R66+R70**	**=S66+S70**
% sales	*=O71/O59*	*=P71/P59*	*=Q71/Q59*	*=R71/R59*	*=S71/S59*
Depreciation expense	=+N74+(-O178/10)	=+O74+(-P178/10)-(L74/7)	=+P74+(-Q178/10)-(M74/7)	=+Q74+(-R178/10)-(N74/7)	=+R74+(-S178/10)-(O74/7)
EBIT	**=-O74+O71**	**=-P74+P71**	**=-Q74+Q71**	**=-R74+R71**	**=-S74+S71**
% sales	*=O75/O54*	*=P75/P54*	*=Q75/Q54*	*=R75/R54*	*=S75/S54*
Financial costs	=-((N30+O30+N36+O36)/2)*0.056	=-((O30+P30+O36+P36)/2)*0.056	=-((P30+Q30+P36+Q36)/2)*0.056	=-((Q30+R30+Q36+R36)/2)*0.056	=-((R30+S30+R36+S36)/2)*0.056
Financial revenue	=+((O15+N15)/2)*0.05	=+((P15+O15)/2)*0.05	=+((Q15+P15)/2)*0.05	=+((R15+Q15)/2)*0.05	=+((S15+R15)/2)*0.05
Gains/ losses on disposal of owne	0	0	0	0	0
Earnings	**=O75+O78+O79+O80**	**=P75+P78+P79+P80**	**=Q75+Q78+Q79+Q80**	**=R75+R78+R79+R80**	**=S75+S78+S79+S80**
% sales	*=O81/O54*	*=P81/P54*	*=Q81/Q54*	*=R81/R54*	*=S81/S54*
Other extraordinaries	0	0	0	0	0
EBT	**=O81+O84**	**=P81+P84**	**=Q81+Q84**	**=R81+R84**	**=S81+S84**
% sales	*=O85/O54*	*=P85/P54*	*=Q85/Q54*	*=R85/R54*	*=S85/S54*
Taxation	=IF(O85>0,O168*O85,0)	=IF(P85>0,P168*P85,0)	=IF(Q85>0,Q168*Q85,0)	=IF(R85>0,R168*R85,0)	=IF(S85>0,S168*S85,0)
Minority interests	0	0	0	0	0
Net profit	**=O88+O85+O89**	**=P88+P85+P89**	**=Q88+Q85+Q89**	**=R88+R85+R89**	**=S88+S85+S89**
% sales	*=O90/O54*	*=P90/P54*	*=Q90/Q54*	*=R90/R54*	*=S90/S54*

Appendix 1.9: Forecasted cash flow statement. Source: author

CASH FLOW					
EUR	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Net profit	4,317,079	4,804,104	6,306,274	6,841,434	7,547,877
Depreciation (no cash)	(2,751,566)	(2,741,798)	(2,718,824)	(2,714,315)	(2,661,234)
1. Cash Flow	**1,565,513**	**2,062,306**	**3,587,450**	**4,127,119**	**4,886,643**
Debtors	(1,513,370)	(1,498,236)	(1,451,625)	(979,847)	(1,028,839)
Inventory	2,446,392	(1,437,191)	(1,483,675)	(3,391,737)	(2,749,985)
Payables	(3,737,303)	1,051,706	212,779	1,380,676	671,492
2. Change in working capital	**(2,804,282)**	**(1,883,721)**	**(2,722,520)**	**(2,990,908)**	**(3,107,332)**
3. Capex: material, intangible, l. financial	**(3,400,000)**	**(3,400,000)**	**(3,400,000)**	**(3,400,000)**	**(3,400,000)**
4. (1+2+3) FCFF 1	**(4,638,769)**	**(3,221,415)**	**(2,535,070)**	**(2,263,789)**	**(1,620,689)**
Other current assets	0	0	0	0	0
Other non-current assets	0	0	0	0	0
Other current liabilities	0	0	0	0	0
Other non-current liabilities	0	0	0	0	0
Minority interests	0	0	0	0	0
5. Other origins (application) of funds	**0**	**0**	**0**	**0**	**0**
6. (4+5) FCFF1 and other origins	**(4,638,769)**	**(3,221,415)**	**(2,535,070)**	**(2,263,789)**	**(1,620,689)**
Dividends	0	0	0	0	(4,000,000)
Change in working capital	0	0	0	0	0
Other change in working capital	0	0	0	0	0
7. Change in equity	**0**	**0**	**0**	**0**	**(4,000,000)**
8. (6+7) CFL2	**(4,638,769)**	**(3,221,415)**	**(2,535,070)**	**(2,263,789)**	**(5,620,689)**
9. Short-term debt	6,388,477	2,401,687	1,641,567	1,298,805	607,456
10. Long-term debt	0	0	0	0	0
11. (9+10) Increase (decrease) in bank debt	**6,388,477**	**2,401,687**	**1,641,567**	**1,298,805**	**607,456**
12. Increase (decrease) in treasury	**(1,749,708)**	**819,728**	**893,503**	**964,983**	**5,013,233**
13. Initial cash	**745,207**	**819,728**	**893,503**	**964,983**	**1,013,233**
14. (8+11+13) Final cash	**2,494,915**	**0**	**0**	**0**	**(4,000,000)**
Check	**0**	**(1,675,187)**	**893,503**	**964,983**	**1,013,233**

Appendix 1.10: Forecasted cash flow statement calculations. Source: author

CASH FLOW					
=C8	**=O$8**	**=P$8**	**=Q$8**	**=R$8**	**=S$8**
Net profit	=O90	=P90	=Q90	=R90	=S90
Depreciation (no cash)	=(+O74)*-1	=(+P74)*-1	=(+Q74)*-1	=(+R74)*-1	=(+S74)*-1
1. Cash Flow	**=O103+O102**	**=P103+P102**	**=Q103+Q102**	**=R103+R102**	**=S103+S102**
=C16	=N16-O16	=O16-P16	=P16-Q16	=Q16-R16	=R16-S16
=C17	=N17-O17	=O17-P17	=P17-Q17	=Q17-R17	=R17-S17
=C34	=O34-N34	=P34-O34	=Q34-P34	=R34-Q34	=S34-R34
2. Change in working capital	**=SUM(O106:O108)**	**=SUM(P106:P108)**	**=SUM(Q106:Q108)**	**=SUM(R106:R108)**	**=SUM(S106:S108)**
3. Capex: material, intangible, I. financial	**=O176**	**=P178**	**=Q178**	**=R178**	**=S178**
4. (1+2+3) FCFF 1	**=O104+O109+O111**	**=P104+P109+P111**	**=Q104+Q109+Q111**	**=R104+R109+R111**	**=S104+S109+S111**
=C18	=O180	=P180	=Q180	=R180	=S180
=C12	=O181	=P181	=Q181	=R181	=S181
=C35	=O182	=P182	=Q182	=R182	=S182
Other non-current liabilities	=O183	=P183	=Q183	=R183	=S183
=C25	=O25-N25	=P25-O25	=Q25-P25	=R25-Q25	=S25-R25
5. Other origins (application) of funds	**=SUM(O115:O119)**	**=SUM(P115:P119)**	**=SUM(Q115:Q119)**	**=SUM(R115:R119)**	**=SUM(S115:S119)**
6. (4+5) FCFF1 and other origins	**=O113+O120**	**=P113+P120**	**=Q113+Q120**	**=R113+R120**	**=S113+S120**
Dividends	=-O187	=-P187	=-Q187	0	-4000000
Change in working capital	=O189	=P189	=Q189	=R189	=S189
Other change in working capital	=+(-N27-O90+O27)-O124	=+(-O27-P90+P27)-P124	=+(-P27-Q90+Q27)-Q124	=+(-Q27-R90+R27)-R124	=+(-R27-S90+S27)-S124
7. Change in equity	**=SUM(O123:O126)**	**=SUM(P123:P126)**	**=SUM(Q123:Q126)**	**=SUM(R123:R126)**	**=SUM(S123:S126)**
8. (6+7) CFL2	**=O127+O122**	**=P127+P122**	**=Q127+Q122**	**=R127+R122**	**=S127+S122**
9. Short-term debt	=+N131	=IF((-P191+P122+P136+P	=IF((-Q191+Q122+Q136+Q132	=IF((-R191+R122+R136+R132)<(	=IF((-S191+S122+S136+S132)<R
10. Long-term debt	=O185	=P185	=Q185	=R185	=S185
11. (9+10) Increase (decrease) in debt	**=SUM(O131:O132)**	**=SUM(P131:P132)**	**=SUM(Q131:Q132)**	**=SUM(R131:R132)**	**=SUM(S131:S132)**
12. Increase (decrease) in treasury	**=-O137+O136**	**=-P137+P136**	**=-Q137+Q136**	**=-R137+R136**	**=-S137+S136**
13. Initial cash	**=N15**	**=O15**	**=P15**	**=Q15**	**=R15**
14. (8+11+13) Final cash	**=O129+O133+O136**	**=P129+P133+P136**	**=Q129+Q133+Q136**	**=R129+R133+R136**	**=S129+S133+S136**
Check	**=O136-N137**	**=P136-O137**	**=Q136-P137**	**=R136-Q137**	**=S136-R137**

Appendix 1.11: Hypotheses. Source: author

HYPOTHESES					
% sales	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
A. P&L HYPOTHESES					
Total change in sales	**10%**	**9%**	**8%**	**5%**	**5%**
Cost of goods sold	**1**	**1**	**1**	**1**	**1**
Number of employees	560	585	605	620	635
Change in number of employees		0	0	0	0
Mean wages per employee (eur thousands)	(34,986,597)	(35,336,463)	(35,689,827)	(36,046,725)	(36,767,660)
Change in mean wages per employee	0	0	0	0	0
Employee expenses	0	0	0	0	0
Change in employee expenses	**0**	**0**	**0**	**0**	**0**
General costs/ sales	**0**	**0**	**0**	**0**	**0**
Depreciation	**14%**	**14%**	**14%**	**14%**	**14%**
Tax expenses	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**
B. BALANCE SHEET HYPOTHESES					
Debtors /Revenue	**16%**	**16%**	**16%**	**16%**	**16%**
Inventory / Material costs	**-65%**	**-62%**	**-60%**	**-62%**	**-63%**
Payables / Material costs	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**
Capex: Material, Intangible, I. Financial	**(3,400,000)**	**(3,400,000)**	**(3,400,000)**	**(3,400,000)**	**(3,400,000)**
Dividends	**0**	**0**	**0**	**0**	**2,000,000**

Appendix 1.12: Hypotheses calculations. Source: author

HYPOTHESES					
=C67	**=O$8**	**=P$8**	**=Q$8**	**=R$8**	**=S$8**
A. P&L HYPOTHESES					
Total change in sales	**0.1**	**0.09**	**0.08**	**0.05**	**0.05**
Cost of goods sold	**=AVERAGE(M152:N152)**	**=AVERAGE(N152:O152)**	**=AVERAGE(O152:P152)**	**=AVERAGE(P152:Q152)**	**=AVERAGE(Q152:R152)**
Number of employees	=N154*(1+O155)+30	=O154*(1+P155)+25	=P154*(1+Q155)+20	=Q154*(1+R155)+15	=R154*(1+S155)+15
Change in number of employees		0	0	0	0
Mean wages per employee (eur thousands)	=N156*(1+O157)	=O156*(1+P157)	=P156*(1+Q157)	=Q156*(1+R157)	=R156*(1+S157)
Change in mean wages per employee	0.02	0.01	0.01	0.01	0.02
Employee expenses	=O58/O54	=P58/P54	=Q58/Q54	=R58/R54	=S58/S54
Change in employee expenses	**=O58/N58-1**	**=P58/O58-1**	**=Q58/P58-1**	**=R58/Q58-1**	**=S58/R58-1**
General costs/ sales	**=AVERAGE(M161:N161)**	**0.194**	**=AVERAGE(O161:P161)**	**=AVERAGE(P161:Q161)**	**=AVERAGE(Q161:R161)**
Depreciation	**=AVERAGE(M163:N163)**	**=AVERAGE(N163:O163)**	**=AVERAGE(O163:P163)**	**=AVERAGE(P163:Q163)**	**=AVERAGE(Q163:R163)**
Tax expenses	**-0.32**	**=AVERAGE(N168:O168)**	**=AVERAGE(O168:P168)**	**=AVERAGE(P168:Q168)**	**=AVERAGE(Q168:R168)**
B. BALANCE SHEET HYPOTHESES					
Debtors /Revenue	**0.164856588809255**	**0.164856588809255**	**0.164856588809255**	**0.164856588809255**	**0.164856588809255**
Inventory / Material costs	**=+(M174+N174+L174)/2.5**	**=+(N174+O174+M174)/2.65**	**=+(O174+P174+N174)/2.78**	**=+(P174+Q174+O174)/3.01**	**=+(Q174+R174+P174)/2.9**
Payables / Material costs	**-0.153468457116248**	**-0.153468457116248**	**-0.145**	**-0.153468457116248**	**-0.153468457116248**
Capex: Material, Intangible, I. Financial	**3000000**	**=+O178**	**=+P178**	**=+Q178**	**=+R178**
Dividends	**0**	**0**	**0**	**0**	**2000000**