FINANCIAL STRUCTURE, PE FUNDS' IRR REQUIREMENT AND CONSISTENCY OF THE DCF VALUATION WITH THE PRICE IN A LBO CONTEXT

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Abstract

We explain in detail how LBO transactions are structured and which returns PE funds' investors expect from such transactions. We look at how PE Funds' investment teams value target companies during the acquisition process. In order to see the consistency of the DCF valuation approach in the context of a LBO, we value 16 companies by using the DCF and LBO methods. The results obtained for the sample show that there is a bias between both valuations, and that on average DCF results are 24% to 34% higher than the LBO ones. Additionally, by using the results obtained with the LBO approach, we obtain a multilinear regression that is able to significantly explain the discount in price in a LBO context as a function of the percentage of acquisition debt, the level of required capital expenditures and the assumed average growth in sales.

Acknowledgments

We would like to thank Professor Olivier Levyne for his patient supervision and advice. Without his guidance and encouragement, this thesis would not have attained the shape it has now.

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TABLE OF CONTENTS

1. INTRODUCTION

A leveraged buyout (LBO) is a transaction where a company is purchased with a combination of equity and a significant amount of debt. In general, the buyer is a Private Equity firm, which is an entity managing and investing pools of capital from private investors investing in the PE funds. The amount of debt raised is structured in such a way that the target's cash flows or assets are used as collateral to secure and repay the borrowed amount. Since debt has a lower cost of capital than equity, the returns on the equity increase. Then, due to LBO transactions' nature, PE funds' investors will require higher returns than investors in publicly traded companies.

In this paper, we will explain in detail how LBO transactions are structured and which returns PE funds' investors expect from such transactions.

Beyond the structure of the transaction and the required return, we will look at how PE Funds' investment teams value a target company during the acquisition process. As we will see, they use what is called the LBO valuation approach, which is significantly different than the valuation methods typically used by financial analysts or investment bankers.

One of the most famous techniques when valuing a company is the Discounted Cash Flows (DCF) method. In order to see the consistency of this classical approach with the price in a LBO context, we will compare results given by both methods (the DCF valuation approach and the LBO valuation approach) for the same target companies.

To do so, we will select a sample of listed companies that meet the characteristics of LBO targets, and we will run a DCF valuation model and a LBO valuation model for each of them. With the help of some statistical analysis, we will try to find a conclusion about the consistency of both valuation methods. Additionally, using the results obtained from the LBO valuation approach, we will see if there is a relationship between key characteristics of LBO targets, such as low levels of debt or low capital expenditure requirements, and the prices required in a LBO context.

As the DCF approach is based on an optimal capital structure, while the LBO approach is imposing a highly leveraged capital structure, our expectation is that we will find different results for both methods. In fact, the LBO analysis is commonly known as the "floor" valuation of a company, so we expect to find the lowest valuations when using the LBO valuation approach.

2. VALUATION OF A COMPANY

The valuation of a company is a common sense exercise that requires technical knowledge. Both, common sense and technical knowledge, are needed to keep track of what is being done, why it is being done in a certain way, and why and for whom are we doing the valuation.

There are 3 main categories of professionals that may need to determine the value of a firm:

- Financial analysts who determine target prices of listed companies which underlie their recommendations (buy, hold or sell the stock)
- Investment bankers, in 2 different contexts:
    - Mergers and acquisitions (M&A):
        - If the target company is listed, its valuation has to be presented to the market authority in order to justify the offer price
        - If the target company is not listed, an auction bid is generally organized by investment bankers. Both, sell-side and buy-side, will value the target in order to give advice to their clients
    - Equity capital markets (ECM), i.e. when preparing an Initial public offering (IPO) or a right issue
- Private equity funds' investment teams when analysing the acquisition of a target company to their portfolio. Their most common kind of transaction is the Leverage Buyout (LBO) and, as we will explain in this paper, their approach of the firm's valuation is significantly different from the abovementioned ones

2.1. Classical valuation methods

For listed firms, the quickest way to obtain their Enterprise Value (EV) is adding up their Market Capitalization (number of shares multiplied by their market price) and Net Debt. It is the simplest valuation method, and it provides a value that cannot be ignored whatever the size of the free float.

Professionals, in particular financial analysts and investment bankers, and academics consider that there are 3 main ways to value a firm, either public or private:

- Peers approach or multiples valuation
    - Listed peers: this approach relies on a sample of listed companies which have the same business model as the firm to be valued (generally made of companies belonging to the same sector and region). Most common multiples are EV/Sales, EV/EBITDA, EV/EBIT, Price/Earnings and Price/Book value

    - M&A peers: same principle than above, but instead of taking market capitalizations of listed peers into account, the equity values of peers correspond to the transaction values in announced M&A deals
- Discounted Cash Flows (DCF) method entails estimating the free cash flows available to the firm and discount them back to a defined date using an appropriate cost of capital. We will see the DCF approach more in detail in the next chapter of this paper
- Net asset values (NAV) and sum of the parts (SotP) approaches. The NAV approach is dedicated to the valuation of holding companies, which are firms managing securities, and their NAV (pre-tax) is the economic value of their assets minus their Net Debt. Similarly, the SotP approach is used to value conglomerates (companies which have various activities); each activity can be valued based on a different approach, and the sum of the valuations is the EV of the conglomerate.

2.2. Recent valuation methods

Since the leveraged buyout boom of the 1980s private equity professionals have used a specific valuation approach for LBO transactions. In the case of a strategic or industrial acquisition, the valuation of the firm with all the previously described methods is the first step before any analysis of the financial consequences of such transaction is done. In a LBO context, the valuation of the firm is the outcome of the structuring of the transaction. In other words, the target company has a specific value in a LBO context. As we will see in this paper, this valuation will be based on the maximum price that can be paid regarding the combination of two ways of financing the acquisition, the maximum amount of acquisition debt that can be raised and the equity invested by PE Funds.

Finally, Black & Scholes (1973) and Galai & Masulis (1977) proposed a valuation of the firm approach based on the option pricing model. In this approach the economic value of the Equity is seen as the premium of a call option, as its value on the expiration date of the debt is the maximum between EV-Debt and 0 (principle of limited liability). Then, in the Black & Scholes formula, the spot price of the underlying asset is the EV on the valuation date, the strike price is the amount of Debt to be repaid on the expiration date, and the time to expiration is the duration of the Debt.

3. THE DCF APPROACH

The DCF method entails estimating the free cash flows (FCF) available to all providers of funds in a firm (shareholders and debtholders), and discounting this cash flows back to a defined date (e.g. the present) using an appropriate cost of capital. Then the enterprise value (EV) is calculated as:

$$EV = \sum_{t=1}^{+\infty} \frac{FCF_t}{(1+K)^t}$$

The discount rate (K) is the Weighted Average Cost of Capital (WACC) that, as we will see, reflects the required returns by both debt and equity investors for investments with the same risk profile.

The DCF method provide a valuation methodology for the operating assets that generate these cash flows. Then, the firm's operational value must be adjusted for non-operating assets.

The firm's equity value is obtained by deducting the value of the Net Debt from the EV obtained.

3.1. Free Cash Flow calculation

The Free Cash Flow to the firm is a change in normative cash based on recurring elements, then exceptional items are not taken into account. Furthermore, as we will see, the WACC already includes the cost of net debt, so net interests are also not taken into account.

Therefore, the FCF calculation is based on the Earnings Before Interests and Taxes (EBIT). Then, as net interests and exceptional items are not taken into account, the corporate tax has to be recalculated based on the EBIT. The after tax EBIT is the Net Operating Profit After Tax (NOPAT).

As EBIT includes the charges of Depreciations and Amortizations (D&A), and these do not correspond to a change in cash, we have to add them back to the NOPAT.

Until this point, all calculations are based on P&L aggregates that do not include the net capex (i.e. capital expenditures net of divestments), whereas the net capex corresponds to changes in cash. As net capex is an outflow, we have to deduct it in the FCF calculation.

Moreover, revenues and costs included in the EBIT do not necessarily correspond to a change in operating cash because of delays of payments. Then, changes in receivables (revenues that will be paid later by clients), payables (part of the purchases that will be paid later by the firm) and inventories (raw materials, work-in-process goods and finished goods) have to be taken into account.

In other words, the change in Working Capital (receivables + inventories – payables) from one period to the other has to be also deducted.

Finally, as the DCF valuation cannot rely on the pay-out policy, dividends paid by the firm to its shareholders are not included in the FCF calculation.

In conclusion, FCF will be calculated as per the following formula:

FCF = EBIT(1 – corporate tax rate) + D&A – Net Capex – Change in Working Capital*

3.2. WACC calculation

The discount rate that we will use to discount the previously calculated FCF is the Weighted Average Cost of Capital. The WACC represents the minimum return that a firm must earn on its assets in order to satisfy its creditors, owners, and other providers of capital given the optimal capital structure.

The WACC formula is:

$$WACC = K_e \frac{E}{E+D} + K_d \frac{D}{E+D}(1-\tau)$$

Where E and D are the economic values of equity and net debt, K_e is the cost of equity, K_d is the cost of debt, and τ is the corporate tax rate.

As most of the time we will not know the economic value of net debt (D), we will use the face value of debt in the liabilities side of the balance sheet minus the cash and cash equivalents in the assets side.

The cost of debt (K_d) will be the effective rate that the firm pays on all its debts, which in general will be mainly bonds and bank loans.

The economic value of equity (E) is the value which is the outcome of the DCF valuation, therefore, we will have to iterate in order to find the solution.

3.3. Cost of equity calculation

The calculation of the cost of equity (K_e) is based on the Capital Asset Pricing Model (CAPM). The CAPM is a model that describes the relationship between risk and expected return, in this case, we need to calculate the expected return of the equity of the firm.

The CAPM formula is:

$$K = r_f + \beta(r_m - r_f)$$

Where r_f will be the risk free rate of the firm's country or region, β will be the beta of the firm and $(r_m - r_f)$ the market premium in the firm's country or region.

The DCF approach is often used to value a company which is not listed and which has no beta. It can also be used to value a listed company. But, in that case, the beta is consistent with the market capitalisation and not with the economic value of equity (E), which is the outcome of the DCF valuation.

3.3.1. Non-listed companies' beta calculation

When the firm to be valued is not listed, which will be in most of the cases for LBOs, an unleveraged beta (β_i^*) has to be obtained from a sample of listed peers. Then, it has to be leveraged based on the optimal capital structure that is implied from the DCF valuation and using the Hamada formula:

$$\beta_i = \beta_i^* + (\beta_i^* - \beta_D) * (1 - \tau)\frac{D}{E}$$

Where β_D is the debt's beta, and will be calculated using the CAPM formula and the firm's cost of debt (K_d).

$$\beta_D = \frac{K_d - r_f}{r_m - r_f}$$

3.3.2. Listed companies' beta calculation

When the firm to be valued is listed, which will be the case in the exercise for this paper, its beta can be obtained from a data basis. As it will be consistent with the company's market capitalization, it has to be unleveraged (i.e. we need to find β_i^*):

$$\beta_i = \beta_i^* \left[1 + \frac{D(1-\tau)}{E}\right]$$

Then,

$$\beta_i^* = \beta_i \frac{1}{\left[1 + \frac{D(1-\tau)}{E}\right]}$$

Finally, as for non-listed firms, β_i^* has to be leveraged based on the optimal capital structure which is implied by the DCF valuation.

3.4. Terminal value calculation

As the business plan for the company to be valued will provide forecasts only for n years, the present value formula has to be broken down in two components:

$$EV = \sum_{t=1}^{n} \frac{FCF_t}{(1+K)^t} + \sum_{t=n+1}^{+\infty} \frac{FCF_t}{(1+K)^t}$$

The first part will be computed using the previously calculated FCFs and WACC, and the second part is the terminal value (TV):

$$TV = \sum_{t=n+1}^{+\infty} \frac{FCF_t}{(1+K)^t}$$

Using the Gordon Growth Model and discounting the perpetuity for n years, we can calculate the TV as:

$$TV = \frac{\frac{FCF_n * (1+g)}{(K-g)}}{(1+K)^n}$$

Where g is the firm's long-term cash flow growth rate.

In order to take into account the cyclicality of a business, we can compute the TV using a normative free cash flow instead of the FCF in year n. The normative free cash flow can be calculated as the average of free cash flows in the latest business cycle of the firm.

4. THE LEVERAGED BUYOUT VALUATION APPROACH

Private equity is a medium of long-term equity investment that is not publicly traded on an exchange. The industry is composed of two types of actors: 1) investors, such as banks, family offices, pension funds, university endowments and high net worth individuals, that contribute capital, and 2) private equity firms that find appropriate companies to buy, make investments and manage them. Private equity firms invest the entrusted investors' capital into companies, most of the time using a certain additional debt raised from banks or other debt market participants such as private debt funds. Thanks to financial leverage through significant use of debt, PE firms are able to deliver enhanced returns to equity investors. Managers of PE funds are often referred as the General Partners (GP), while investors are known as the Limited Partners (LP): the latter term emphasizing the limited liability of LPs who can lose at most the sum of their committed capital contributions and nothing above that limit.

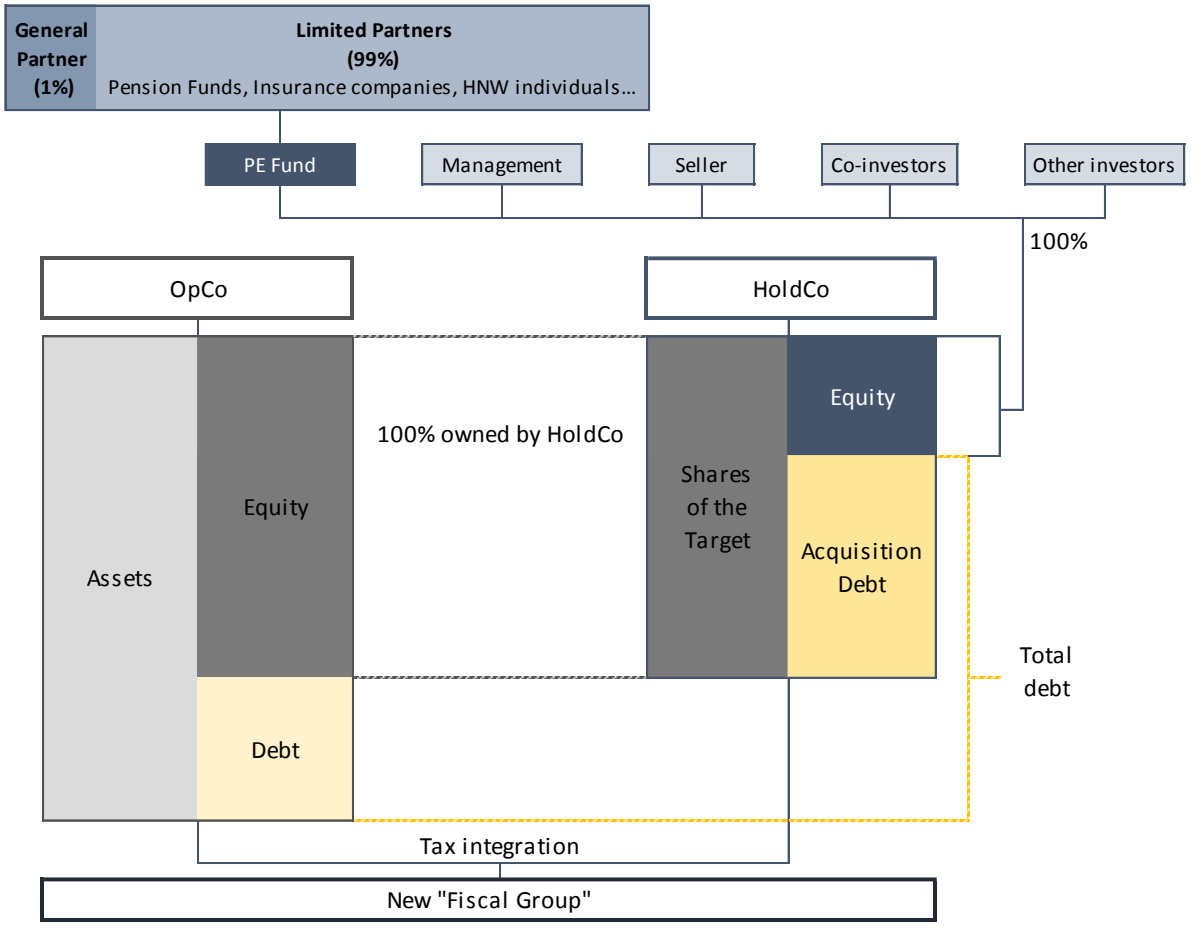
Even though leveraged buyout funds are the most common kind of PE funds, private equity also stands for other alternative investments like growth equity funds, venture capital funds, certain real estate investment funds, private investment in public equity (PIPE), and other types of special situations funds. The focus of this paper will be only the leveraged buyout funds (LBOs).

4.1. Structure of a LBO

A Leveraged Buyout (LBO) consists in the acquisition of a business entity by one or several financial investors (such as pension funds, institutional investors, insurance companies, universities, foundations…) and/or persons (usually high-net-worth individuals), using a considerable amount of debt leverage to finance part of the acquisition price. The purpose of such kind of acquisition is, for these financial investors, to substantially extract high capital gains, in terms of IRR, over the medium term (2-5 years) by selling the company at an increased value compared to the initial investment.

In other words, an LBO is the acquisition of an operating company (the "Target" or "OpCo") through a holding company (the "NewCo" or "HoldCo") specifically created for that purpose, financed by debt (the "Acquisition debt") to the extent allowed by the OpCo's reimbursement capacities and, for the balance, by shareholders' equity (from the above mentioned financial investors). Acquisition debt will be reimbursed, in whole or in part, with the cash flows generated by the OpCo. Financial sponsors aim for high IRRs through the increased value of the acquired company combined with the financial leverage.

The following diagram reflects the kind of structure of LBO transactions:



Source: own elaboration

In general, the above is how LBO transactions are structured. The most important is to find a target with the cash flow generation capacity to afford a huge amount of new debt. Such financial leverage will be, complemented with equity, the main source of financing the HoldCo, which will fully own the OpCo, in general. Such amount of debt will be reimbursed thanks to the upstream of cash flows in form of dividends from the OpCo.

At the same time, the equity portion can be provided by different kind of investors. The most important one, the PE Fund, whose contribution into the firm and its desired return will determine, in a way, the price to be paid at entry. As mentioned before, the PE Funds are integrated by General Partners and Limited Partners. GP, which invest around 1% of the capital, are the Private Equity firms that organize such kind of transactions. LP on the other hand are purely investors looking for a certain return, such as Pension Funds, Institutional Investors, Universities, Foundations, among others. Alongside the PE Funds, there are other potential investors that can invest directly to the HoldCo. The common one, the Management of the OpCo. Such way, interests between investors and management

are aligned. Finally, other investors might have a portion but it depends on each particular transaction.

4.2. Valuation

The valuation of a firm in an LBO context will be based on the maximum price paid regarding the combination of two ways of financing the acquisition:

- Debt financing: maximum proportion of debt granted by banks and affordable to be reimbursed with the cash flows generated by the OpCo
- Equity financing: maximum proportion of equity that PE Funds will invest in order to obtain their desired IRR

This valuation depends on different metrics that could vary and thus the price will not always represent the fair value to be paid. In general, the equity value is calculated as:

$$EQUITY\ VALUE = MULTIPLE\ x\ EBITDA\ (or\ EBIT) - CONSOLIDATED\ NET\ DEBT$$

This EBITDA multiple, for instance, is one of the key metrics that determine the value both at entry and at exit. The aim of investors is to improve the company as a whole in order to get paid a higher multiple at exit.

What is fundamental in the valuation of a Leveraged Buyout is the level of new leverage that the company is able to support. Such amount of leverage:

- Maximizes the return (IRR) for investors as it is a cheaper way of financing
- Maximizes capital gains of invested funds as leverage effect takes place as follows:

$$ROE = k_e + (k_e - k_d)\ x\ leverage$$

- Decreases risk exposure of investors as risk is distributed throughout the financing pool of shareholders and debt providers
- Increases the shooting power of funds as bigger targets can be reached with limited amount of equity

As LBO investors always think in terms of IRRs (on the contrary of strategic buyers that think in terms of accretion/dilution and market power):

- Price itself is relative because depends on entry/exit multiples and, above all, its required return for them

- Value creation is key but creation of synergies is not a priority at all
- Leverage boost its return on capital invested:

$$Equity\ at\ Entry = \frac{Equity\ at\ Exit}{(1+IRR)^t} \quad where\ t \sim 2 \text{ to } 5 \text{ years}$$

The higher the leverage at entry, which means less initial equity, the bigger can be the IRR for the whole investment, assuming that equity at exit has become higher thanks to growth in the company over the investment period.

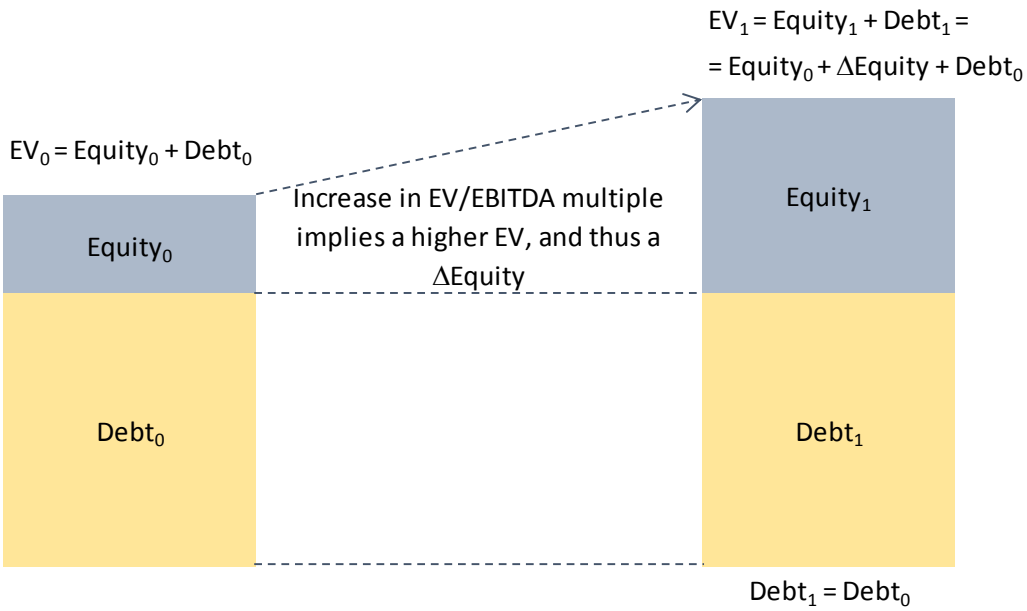
4.2.1. Value Creation

We can identify three important drivers of returns in an LBO context, which are also key determinants for the valuation:

$$EQUITY\ VALUE = \underbrace{VALUATION\ MULTIPLE}_{\text{Multiple Expansion}} \times \underbrace{EBITDA\ (or\ EBIT)}_{\text{Earnings Growth}} - \underbrace{CONSOLIDATED\ NET\ DEBT}_{\text{Financial Leverage}}$$

4.2.1.1. Multiple Expansion

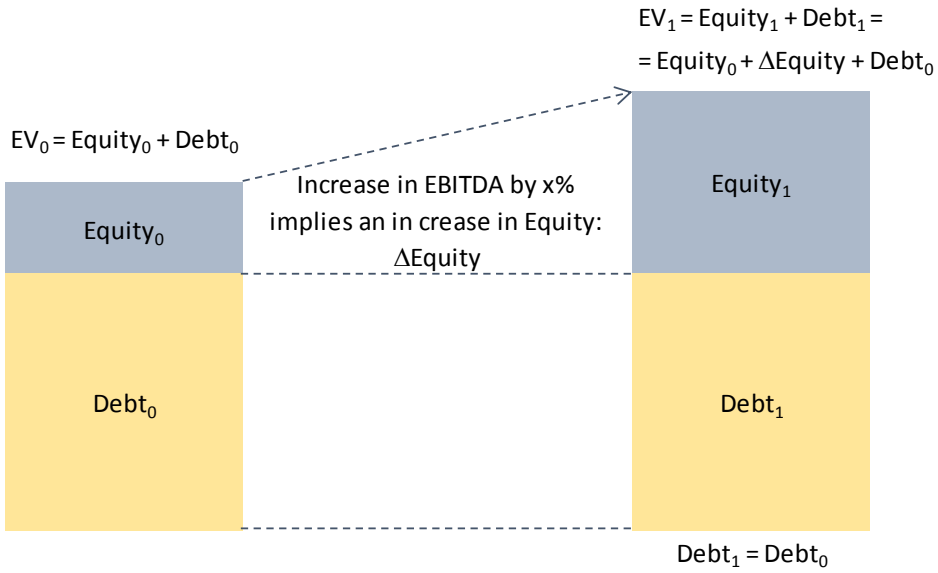
Assuming no change in debt, there is an important part of the valuation coming from the expansion of the valuation multiple. That is, everything else being equal in t_0 and t_1, if the Exit multiple is higher than the Entry multiple, the EV_1 will be higher than EV_0, which implies a value creation for the shareholders of the company in terms of higher Equity value at t_1 as follows:



Source: own elaboration based on LBO in Practice course notes 2015-16 by Prof. Marc-Elie Bernard, HEC Paris

4.2.1.2. Earnings growth

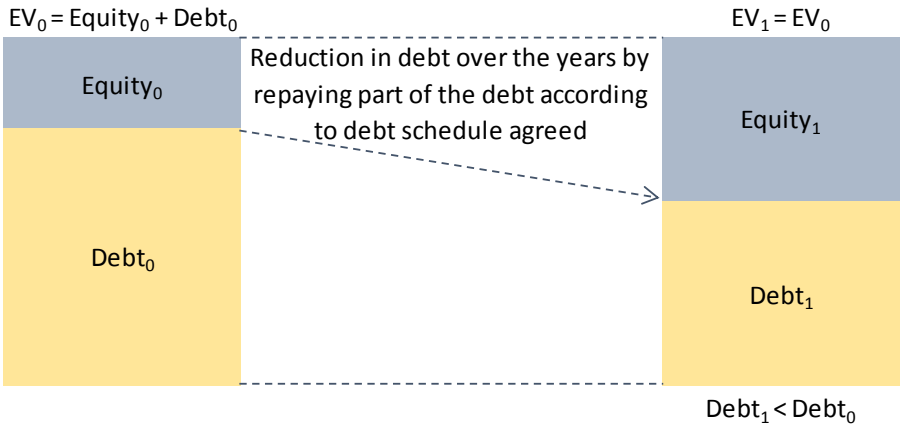
Assuming no change in debt, another important part of the value creation comes from the ability of the company to improve its operations and deliver growth in revenues and reduction of costs over the years, which is translated as an increase in EBITDA and/or EBIT. That is, everything else being equal in t_0 and t_1, if the EBITDA in t_1 is higher than the EBITDA at t_0, for the same valuation multiple, the EV_1 will be higher than EV_0, which implies a higher Equity value at t_1 as follows:



Source: own elaboration based on LBO in Practice course notes 2015-16 by Prof. Marc-Elie Bernard, HEC Paris

4.2.1.3. Financial leverage

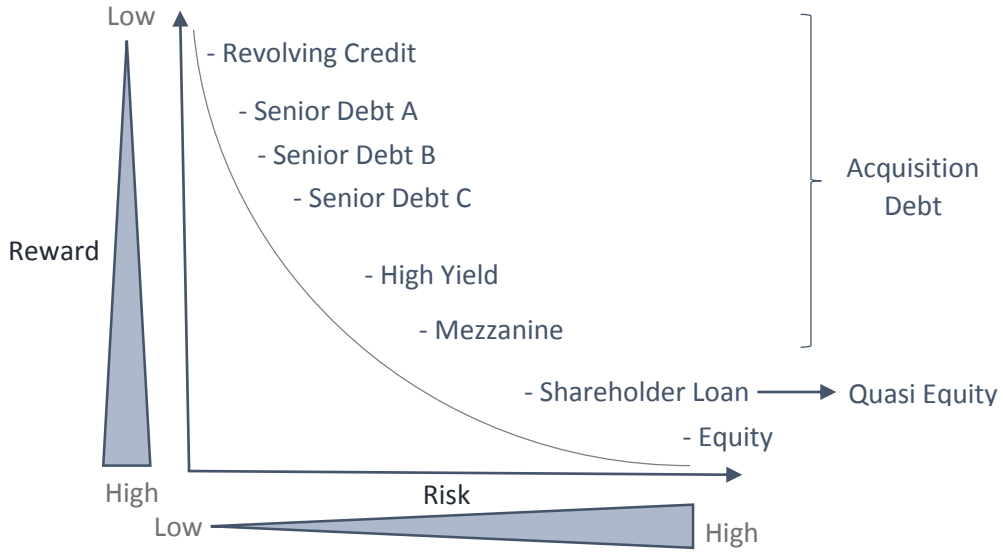
Assuming no increase in Enterprise Value, same valuation multiple at entry and at exit and no growth, the financial leverage leads to a creation of value for the shareholders after part of this debt has been repaid over the years. The repayment of debt is carried with the cash flows generated by the OpCo and potential asset disposals. As a result, at exit there is a higher Equity and a lower Debt outstanding as follows:



Source: own elaboration based on LBO in Practice course notes 2015-16 by Prof. Marc-Elie Bernard, HEC Paris

4.3. Acquisition financial leverage

Regarding the financial leverage, there are several types of instruments in which the acquisition debt can be structured. The overall amount of acquisition debt has to be balanced from, less risky instruments such as Senior debt, to more expensive instruments such as Mezzanine or High Yield debt, in order for the lenders to ensure accomplishment of repayment of debt through the assessment of different financial covenants, which basically measure the cash flow generation capacity of the OpCo. The above chart presents the tradeoff between the risk and reward for the different instruments that can be used as financing for the acquisition of the OpCo:



Source: own elaboration based on LBO in Practice course notes 2015-16 by Prof. Marc-Elie Bernard, HEC Paris

The below table presents a summary of the common debt instruments that are used in this kind of transactions and its main characteristics in general. Of course, this is a general framework. Each particular transaction will have specific conditions, specific debt instruments different leverage amounts that will be determined by the OpCo cash flow generation capacity, which will limit the maximum amount of debt available for the acquisition as well as it will determinate the optimal structure for both equity investors and lenders. In other words, the maximum of debt that can be raised for the acquisition is the one that can be repaid by the holding, provided that its net cash balance is always positive. Otherwise, it would mean that the holding has to run into debt before the end of the LBO which would constitute a breach in one of the covenants.

Debt Instrument	Term	Size	Interest	Repayment	Seniority	Main Lenders
Revolving Credit	3-7 years	5%-15%	Euribor + 1.00%-1.75% Cash interests	Yearly (linear)	-Senior secured claim against assets	-Commercial banks -Commercial paper investors
Senior Term Debt	7-9 years	25%-50%				
-Tranche A			Euribor + 1.75%-2.25% Cash interests	Yearly (linear)	-Usually the second lowest-cost financing -Secued by assets -Structurally senior to debt layers and equity	-Commercial banks -Investment banks -Mutual funds -Structured investment funds -Finance companies
-Tranche B			Euribor + 2.25%-3.25% Cash interests	Bullet Point		
-Tranche C			Euribor + 2.50%-3.75% Cash interests	Bullet Point		
High-Yield	8-10 years	20%-40%	Euribor + 8.00%-12.00% Cash interests	Bullet Point	-Subordinate to Senior debt in rights and remedies	-Pension funds -Insurance companies -Finance companies -Debt and mutual funds -Hedge funds -Institutional investors -Private investors
Mezzanine	8-10 years	20%-40%	Euribor + 10.00%-12.00% PIK interests	Bullet Point	-Subordinate to Senior debt in rights and remedies	-Commercial banks -Investment banks -Structured investment funds -Finance companies -Mutual funds -Hedge funds -Institutional investors -Private investors

Quasi Equity	Features
Shareholders Loan	-Funded by PE investor -Ranks below all debt instruments on priority of repayment -Flexible repayment but normally after all other debts have been significantly repaid -Carries a cummulative fixed rate coupon (PIK interests)

Source: own elaboration based on LBO in Practice course notes 2015-16 by Prof. Marc-Elie Bernard, HEC Paris

When the LBO is structured, the HoldCo cash balance is equal to zero, as the whole cash is invested in the OpCo's shares. Then, the cash balance is changed by the cash flows generated at the operating level. If the net cash balance becomes negative, it means that the firm has to use overdraft to face its financing needs, which means that new indebtedness is required. To refinance or restructure the debt in an LBO context is possible as long as the covenants and contract conditions with lenders are respected. In our case, the LBO valuation relies in the maximum amount of debt given the cash flow generation capacity of the company so that a refinancing is not necessary over the investment period.

4.4. PE Funds' IRR requirement

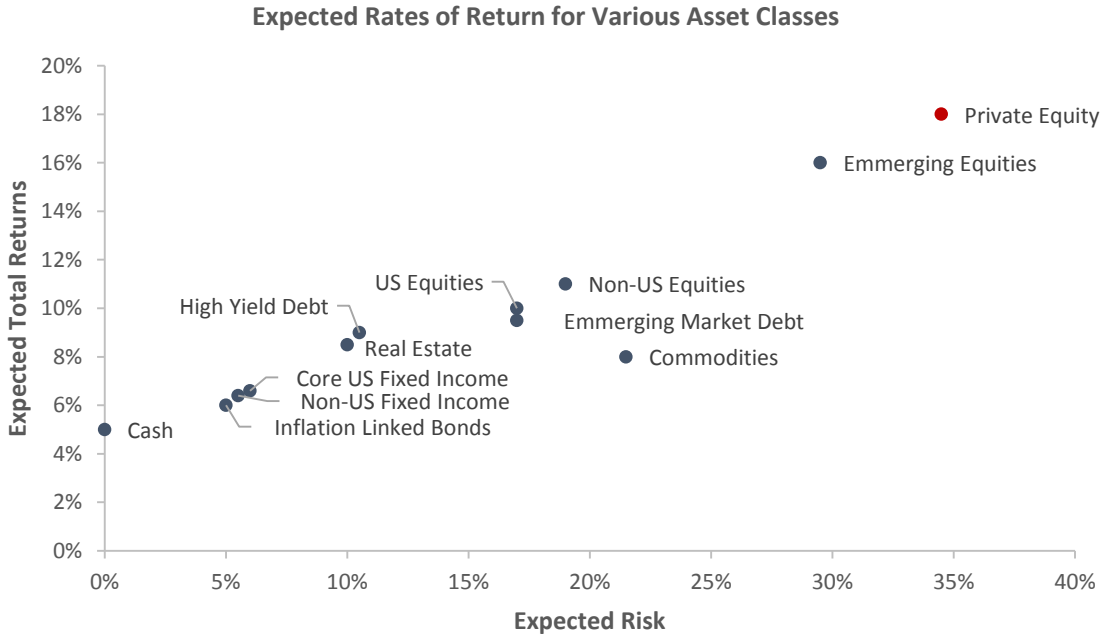
One of the most important aspects in an LBO valuation is what the investor expects when entering in a particular investment, that is the desired return or, more specific in an LBO context, the desired IRR.

The IRR as an indicator of return is not as tangible as, for example, a Cash on Cash multiple also called Multiple on Invested Capital (MOIC) because it strongly depends on the life of the investment, which in this case is the time between the acquisition and the exit by the PE investor. This is how the IRR is calculated:

$$NPV = \sum_{t=1}^{T} \frac{I_t}{(1 + IRR)^t} - I_0 = 0$$

So, as per the formula above, the IRR is the discount rate that brings to present value the sum of the total inflows of an investment over a period t equal to the initial investment in t=0. It seems obvious that investors try to maximize their IRR in order to undertake investments.

Not all kind of asset classes have the same expected return, in fact, the expected return depends on the undertaken risk of the invested capital in the particular asset class. As it is shown in the chart below, the investment in Private Equity implies a high attached risk that leads to investors requiring or expecting higher returns.



Source: own elaboration based on Asset Management course notes 2015-16 by Prof. Jean-Charles Bertrand, HEC Paris

In order to determine what is, in general, the level of IRR required for Private Equity Funds we have noticed substantial variation in IRR requirements among different academic research papers and research reports. Based on historical returns of PE Funds from different data providers, a survey on *"Private Equity Performance: What Do We Know?"* by R. Harris, T. Jenkinson and S. Kaplan (July 2013) suggest that for buyout funds, their weighted average IRRs are between 12.3%-16.9% while for VC funds the weighted average IRRs are between 11.7%-19.3%. It also shows that the performance of buyout funds has been stable over time, with weighted average IRRs of 15.1%-22.0% in the 1980s, 11.8%-19.3% in the 1990s, and 5.8%-12.8% in the 2000s while for VC funds the performance has been more volatile, with weighted average IRRs ranging from 8.6% to 18.7% in the 1980s, 22.9% to 38.6% in the 1990s, and -4.9% to 1.6% in the 2000s.

A more recent Harvard Business School working paper *"What do Private Equity Firms say they do?"* by P. Gompers, S. Kaplan and V. Mukharlyamov (April 2015) states that PE investors say they target median IRRs of about 25% and that the target depends on the size of the PE firm (small PE firms tend to target higher IRRs). Also, regarding what PE investors say they target in terms of MOIC, the research shows they target median MOICs of 2.5 times their investment, which implies a gross IRR of approximately 20% over a five-year time horizon.

In fact, the required level of IRR varies depending on the targeted company's industry and, of course, depends on each fund investment return willingness or philosophy and size. According to a research report by KFW Development Bank, the minimum expected return that PE firms have on their portfolios has decreased in the past decade. While in 2002 PE firms on average expected a minimum return of 25%, by 2011 this expected return fell to almost 19%.

In our case, considering historical trends and current environment, we have considered that for our purpose, a 20% IRR is a conservative level of return that is in line with what the industry has been delivering and not too aggressive regarding outlook of the buyout sector.

5. EXAMPLE OF DCF AND LBO MODELS FOR HUGO BOSS AG

In this section we pretend to fully develop how the valuation models have been built for the purpose of this paper. To do so, we will present in detail an example of one of the 16 companies evaluated, HUGO BOSS AG. This is a summary of the outputs obtained in each valuation method for the company:

HUGO BOSS AG

SUMMARY TABLE (€m)

Market Valuation			DCF Valuation			LBO Valuation		
Net Debt 2015	2%	95	WACC		7.7%	Desired IRR		20.0%
Market capitalization	98%	3,915	Perpetual Growth		1.5%			
Number of shares (m)		*69*				Funds' Equity Value	48%	1,676
Enterprise Value	**100%**	**4,010**				Acquisition Debt	52%	1,823
			Sum of Disc FCF (16-25)	45%	2,356	**Total Sources**	**100%**	**3,499**
EBITDA 2015		590	Terminal Value	55%	2,922			
Implied EV/EBITDA 2015		**6.8x**	**Enterprise Value**	**100%**	**5,278**	Purchase of shares		3,482
						Transaction costs		17
			Net Debt 2015		95	**Total Uses**		**3,499**
Market Capitalization		3,915	Equity Value		5,183	Equity Value		3,482
Share Price (as of 14-Mar-16)		**€ 56.7**	**Implied Share Price**		**€ 75.1**	**Implied Share Price**		**€ 50.4**

Apparently, what we could expect holds in this specific case. On the one hand, the LBO valuation gives the lowest share price of €50.4, 11.1% below the market price. On the other hand, the DCF valuation gives the highest one with a share price of €75.1, 32.5% premium with respect of the market price and 49.0% higher than the LBO valuation, which in this case is the so called "floor valuation".

5.1. Business Plan

Before getting into details of how we have built the models, we should first take a look into the main Business Plan assumptions we have considered in general for the companies and, in particular, what specific assumptions we have applied in HUGO BOSS AG example.

In all cases, we have estimated figures for a 10 years period. The most important assumption we have considered is the growth in sales over the years, as it is the top line assumption. To do so, we have looked at the growth of last years as well as company estimations for 2016. Then, by looking at industry growth estimations and inflation forecasts, we have established a growth for 2021 and a

Terminal Growth Rate (TGR) that will hold for 2026 onwards. In both cases, growths in between have been linearly calculated.

As per the financials below, in this particular case, the 2016 growth is fixed at 4% and 2% for 2021. The TGR has been assumed to be 1.5%, all them based in company's own projections, broker's consensus forecasts and inflation perspectives in Germany.

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
Sales	2,572	2,809	2,921	3,023	3,114	3,192	3,256	3,305	3,354	3,404	3,456	3,507
growth (%)		*9%*	*4%*	*4%*	*3%*	*3%*	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*
EBITDA	**571**	**590**	**613**	**635**	**654**	**670**	**684**	**694**	**704**	**715**	**726**	**737**
EBITDA margin (%)	*22%*	*21%*	*21%*	*21%*	*21%*	*21%*	*21%*	*21%*	*21%*	*21%*	*21%*	*21%*
D&A	(123)	(142)	(144)	(149)	(153)	(157)	(160)	(162)	(165)	(167)	(170)	(172)
as % of sales	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*
EBIT	**449**	**448**	**470**	**486**	**501**	**513**	**524**	**531**	**539**	**548**	**556**	**564**
EBIT margin (%)	*17%*	*16%*	*16%*	*16%*	*16%*	*16%*	*16%*	*16%*	*16%*	*16%*	*16%*	*16%*

The rest of the assumptions have followed 2 basic rules: the figures will be estimated as a percentage of sales and such percentage will be determined, in general, by the average of the las two years that is the 2014-2015 average, and will hold flat for 2016 onwards in order to be conservative. That is why the growth in sales is definitely the most sensitive assumption, as EBITDA, D&A, working capital items and capex are estimated as a percentage of sales.

In this particular case, EBITDA margin average is 21% and D&A as a percentage of sales is 5%. With this, we obtain the EBIT, which will be the latest P&L item common in both valuations.

WC and Capex (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
Inventories	507	560	579	599	617	633	645	655	665	675	685	695
as % of sales	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*
Accounts Receivables	251	240	267	276	285	292	297	302	306	311	316	320
as % of sales	*10%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*
Accounts Payables	315	318	344	356	367	376	384	389	395	401	407	413
as % of sales	*12%*	*11%*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*
Working Capital	**443**	**481**	**502**	**519**	**535**	**548**	**559**	**568**	**576**	**585**	**594**	**603**
Δ in Working Capital		38	21	18	16	13	11	8	9	9	9	9
Capex	**(130)**	**(194)**	**(175)**	**(181)**	**(186)**	**(191)**	**(195)**	**(198)**	**(201)**	**(204)**	**(207)**	**(210)**
as % of sales	*5%*	*7%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*

Following the same procedure, capex, inventories, account receivables and account payables have been estimated as a percentage of sales as per the table above. With these items, we are will able to

compute the variation in working capital, which together with capex will be used in the DCF valuation and in the LBO valuation to build OpCo's financial statements.

5.2. DCF valuation model

In this section we will go through the valuation of HUGO BOSS AG using the Discounted Cash Flows approach, and we will discuss the assumptions that have been taken into consideration for that purpose.

5.2.1. WACC Calculation

In order to value the company with the Discounted Cash Flows approach we need to calculate the discount rate, which, as we have seen, will be the WACC. As explained before, the WACC depends on the optimal capital structure of the company. Therefore, the WACC calculation depends on our main output in this valuation, the Equity Value, so we will have to iterate using Excel's circularity until D/E reaches the optimal proportion that minimizes the WACC.

In order to compute the WACC, we first need to calculate both the Cost of Debt and the Cost of Equity. For the calculation of the Cost of Debt, we have computed an approximation of the cost of the existing financial debt, in those cases where actual interests are not directly disclosed in the Annual Report. In the case of HUGO BOSS AG, the calculation has been as follows:

	2014A	2015A	Average
Interest expense	(6.1)	(7.1)	
Total debt	171.9	176.5	
Interests on Debt	**3.6%**	**4.0%**	**3.8%**
Interest income	1.6	1.2	
Total cash	128.6	81.4	
Interests on Cash	**1.3%**	**1.5%**	**1.4%**

As a proxy of the pre-tax cost of debt we have computed the last two years average of the interests to total outstanding financial debt, which in this case gives a pre-tax cost of debt of 3.8% and, with HUGO BOSS AG's effective corporate tax rate of 24.0%, a Cost of Debt of 2.9%.

Regarding the Cost of Equity, as a source of the Risk free rate we have used the 10 years' sovereign bond interest rate applicable to the regions where companies are operating. Similarly, for the Equity Risk Premium (ERP), we have used the Damodaran database estimations of the ERP applicable in the different countries or regions where companies operate. Given that HUGO BOSS main market is

Europe, we have considered a 1.0% Euro generic 10yr bond as a risk free rate and an ERP of 7.5% as per Damodaran Western Europe region estimates.

For the calculation of the beta, the main source has been Thomsone One financial database. With this levered beta, in this case of 0.907, we have unlevered it, as explained in the theory, using the current capital structure of the firm and obtaining an unlevered beta of 0.895. After that, we have re-levered this beta by using the optimal capital structure, so we have a second circularity here, and the beta of debt (inferred from CAPM, given that we already have the pre-tax cost of debt, the risk free rate and the risk premium of the market). In the end, we obtain a 0.901 Re-levered beta for HUGO BOSS AG.

BETA CALCULATIONS	
Levered beta (Thomson One)	0.907
Unlevered beta	0.895
D/E	1.8%
Beta of debt	0.430
Tax rate	24.0%
Re-levered beta	**0.901**

With all that, we obtain a Cost of Equity of 7.8%.

WACC CALCULATIONS	
Risk free rate (Euro generic 10yr bond)	1.0%
Market Risk Premium (Damodaran W. Europe)	7.5%
Re-levered beta	0.90
Cost of Equity	**7.8%**
Pre-tax Cost of Debt	3.8%
Tax rate	24.0%
Cost of Debt	**2.9%**
WACC	**7.7%**
TGR	1.5%

Finally, with a Cost of Debt of 2.9%, a Cost of Equity of 7.8% and an optimal capital structure of 1.8% D/E, we obtain a WACC of 7.7%. This result, as mentioned above, comes from several iterations in the DCF valuation itself in order to obtain the minimum value given the optimal capital structure.

5.2.2. Free Cash Flow Calculation

Now is time to compute the Free Cash Flows to the Firm that, as already explained before, are the cash flows available after operational needs have been covered, in other words, the cash flows left to be distributed or used for financing purposes. Following Business Plan projections, we have calculated the FCFs for the next 10 years and then we have assumed a Terminal Value.

As it is shown in the below table, for HUGO BOSS AG, and in general for the rest of the companies, the FCF is calculated from EBIT. Then, taxes involved are deducted, obtaining the NOPAT. Finally, we

adjust for non-cash items such as D&A, and we subtract the variation of working capital and the capital expenditures. These FCFs do not depend on the capital structure of the firm as the interests are not included. In fact, this is why we discount those FCFs with the WACC obtaining the present value as per today.

DCF										
Free Cash Flow (€m)	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**
EBIT	470	486	501	513	524	531	539	548	556	564
NOPAT	357	370	381	390	398	404	410	416	422	429
Tax rate (%)	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*
+ D&A	144	149	153	157	160	162	165	167	170	172
- Capex	(175)	(181)	(186)	(191)	(195)	(198)	(201)	(204)	(207)	(210)
- Δ in Working Capital	(21)	(18)	(16)	(13)	(11)	(8)	(9)	(9)	(9)	(9)
Unlevered Free Cash Flow	**305**	**320**	**332**	**343**	**352**	**360**	**366**	**371**	**377**	**383**
Discount factor	93%	86%	80%	74%	69%	64%	60%	55%	51%	48%
Present Value of FCF	**284**	**276**	**266**	**255**	**244**	**231**	**218**	**206**	**194**	**183**

5.2.3. Valuation

Once the present values of the FCFs from 2016 to 2025 are calculated, we add them up and we calculate the Terminal Value. To do so, we have calculated a normative FCF as the 5-year average from 2021-25. Then, using the Gordon Growth model, and assuming a TGR of 1.5%, we have calculated the Terminal Value and discounted it to present value, obtaining the below results in this case:

VALUATION (€m)		
Sum of discounted FCF (2016-25)	45%	2,356
Terminal Value (TGR = 1.5%)	55%	2,922
Enterprise Value	**100%**	**5,278**
Net Debt 2015		95
Minorities		-
Equity Value		**5,183**
Number of shares (m)		*69*
Implied Share Price		**€ 75.1**

Once we have the present value of all the Free Cash Flows, we add them up and we obtain the Enterprise Value, which in this case is €5,278m. Then, after subtracting the Net Financial Debt and adjusting for Minorities, Associates and other liabilities items such as financial leases or pensions, we

obtain the Equity Value. In our case, the Equity Value is €5,183m that represents an implied share price of €75.1 given that the company has 69m shares.

5.3. LBO valuation model

As explained before, the valuation in an LBO context requires a specific structure made up of an Operating Company (OpCo) and a Holding Company (HoldCo). In this section we will go through all the financial statements of both companies as well and explain all the assumptions made for the valuation purpose. We have assumed, for the purpose of this paper, an investment period of 5 years, from 2016 to 2020.

5.3.1. Operating Company Financial Statements

First of all, we start with the OpCo financial statements. As per the table below, the Income Statement has been built directly from the Business Plan previously adopted down to the EBIT line. After deduction of net interests and corporate tax expenses, we finally obtain the Net Income to the entire firm. See below the P&L for HUGO BOSS AG.

OPERATING COMPANY ACCOUNTS							
P&L (€m)	**2014A**	**2015A**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Sales	2,572	2,809	2,921	3,023	3,114	3,192	3,256
growth (%)		*9%*	*4%*	*4%*	*3%*	*3%*	*2%*
EBITDA	**571**	**590**	**613**	**635**	**654**	**670**	**684**
margin (%)	*22%*	*21%*	*21%*	*21%*	*21%*	*21%*	*21%*
D&A	(123)	(142)	(144)	(149)	(153)	(157)	(160)
D&A/Sales (%)	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*
EBIT	**449**	**448**	**470**	**486**	**501**	**513**	**524**
(Net interests)	(12)	(28)	(6)	(5)	(5)	(5)	(5)
Cost of net debt	*0%*	*64%*	*6%*	*17%*	*20%*	*24%*	*30%*
Profit before tax	**437**	**420**	**464**	**481**	**496**	**508**	**519**
(Corporate tax)	(103)	(101)	(111)	(115)	(119)	(122)	(124)
Corporate tax rate	*23%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*
Net income	**334**	**319**	**353**	**366**	**377**	**386**	**394**

In terms of interest expenses, we have assumed that the OpCo does not refinance its existing financial debt once the HoldCo acquires it. As explained previously, there are two ways to proceed: the OpCo refinance its existing debt by consolidating all this with the new acquisition debt raised at HoldCo level or the OpCo maintains its own debt for operational financing purposes. Given that the companies

evaluated do not hold high amounts of outstanding debt before acquisition, we have decided to maintain their debt at the OpCo level and keep it constant over the years. That is why, as per the table below, interest expenses remain constant over the next five years. The cost of debt assumed is the same calculated before for the DCF valuation. Similar procedure has been applied to calculate interests on cash for the interest income (in cases where interests on cash were not disclosed, we have assumed a minimum return on cash corresponding to the risk free rate applicable for each company). See below the split between the financial expenses and income for the specific case of HUGO BOSS AG:

	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Net Interests	**(11.6)**	**(27.7)**	**(5.9)**	**(5.2)**	**(5.1)**	**(5.1)**	**(5.0)**
Interests on debt			(6.7)	(6.7)	(6.7)	(6.7)	(6.7)
Debt interest (%)			*4%*	4%	4%	4%	4%
Interests on cash			0.8	1.5	1.6	1.6	1.7
Cash interest (%)			*1%*	1%	1%	1%	1%

After the P&L, we will start building the Balance Sheet Statement. Non-current assets and working capital will evolve depending on the assumptions made in the Business Plan, while other current assets and liabilities have been assumed to be constant, for simplification purpose. Then, in general, the Shareholder's Equity will increase depending on the Net Income for the year and the dividends paid to the HoldCo. In the same way, the Net Financial Debt will be reduced over the time because of the assumption of non-refinancing of the existing debt and the increase in cash non-distributed over these years, which will be coming from the Cash Flow Statement. See below the particular case of HUGO BOSS AG:

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	660	765	796	828	861	895	929
Working Capital	443	481	502	519	535	548	559
Other Current Assets	115	155	155	155	155	155	155
Capital Employed	**1,218**	**1,401**	**1,453**	**1,502**	**1,551**	**1,598**	**1,644**
Shareholder's Equity	844	956	1,072	1,127	1,180	1,231	1,280
Net Financial Debt	43	95	30	25	21	17	14
Other Liabilities	331	350	350	350	350	350	350
Invested Capital	**1,218**	**1,401**	**1,453**	**1,502**	**1,551**	**1,598**	**1,644**

For the Cash Flow Statement, an important assumption that has been made is that the company maintains a minimum level of operational cash in order to avoid that, because of the nature of an LBO that is to distribute as much as possible cash upside in form of dividends, the OpCo had liquidity issues. This assumption will also help us when looking for the maximum amount of acquisition debt, as we will only have to focus on HoldCo's cash balance to make sure that the group as a whole does not run out of cash. In particular, we have assumed that the OpCo has to keep in balance a 5% of the sales in form of cash:

Operating Cash at OpCo / Sales	5.0%

This implies that the cash flow before dividends has to check that after distributing dividends to the HoldCo, the remaining amount of cash in balance is at least 5% of the sales. For this reason, as you can see in the following table for HUGO BOSS AG, the OpCo is not always able to have a 100% payout ratio. We recall that the dividend paid in year *n* comes from the Net Income in year *n-1*.

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			613	635	654	670	684
Tax Expense			(111)	(115)	(119)	(122)	(124)
Capital Expenditure			(175)	(181)	(186)	(191)	(195)
-Δ in Working Capital			(21)	(18)	(16)	(13)	(11)
Net Interests			(6)	(5)	(5)	(5)	(5)
Cash flow before dividends			**301**	**316**	**328**	**339**	**349**
Dividends paid to HoldCo			(236)	(311)	(324)	(335)	(345)
Payout ratio (%)			*74%*	*88%*	*88%*	*89%*	*89%*
Available Cash			**65**	**5**	**5**	**4**	**3**

5.3.2. Holding Company Financial Statements

Now it is time to go through the Holding Company Statements and cover all the assumptions made at this level for the valuation purpose.

HOLDING COMPANY ACCOUNTS						
P&L (€m)	**2015A**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Dividends received from OpCo		236	311	324	335	345
Corporate tax received from OpCo		111	115	119	122	124
Transaction costs amortization		(7)	(7)	(3)	-	-
Interests on acquisition debt		(47)	(44)	(40)	(37)	(34)
of which tranche A (Cash)		*(31)*	*(27)*	*(22)*	*(18)*	*(13)*
of which tranche B (Cash)		*(7)*	*(7)*	*(7)*	*(7)*	*(7)*
of which Mezzanine (PIK)		*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
Income before tax		**293**	**376**	**399**	**420**	**436**
(Tax paid)/Tax Credit		(101)	(107)	(112)	(117)	(120)
Net Income		**192**	**269**	**286**	**303**	**316**

As it is a Holding Company, when computing the Income Statement, the only sources of income are the dividends from the OpCo and the corporate taxes from OpCo that need to be paid to the authorities after consolidation (given that the companies are able to benefit from a tax integration when the HoldCo acquires more than 95% of the OpCo, but it will be explained in detail later on).

In terms of expenses, there are transaction costs resulting for the accomplishment of the acquisition itself (for example, advisory fees or legal costs). For simplification purpose, we have assumed an amount of transaction costs of 0.5% of the total consideration that will be capitalized and amortized over 2 years and a half.

Transaction costs (as % of total consideration)	0.5%
Transaction costs amortization (years)	2.5 Yrs

One important expense at HoldCo level is the total amount of interest expenses resulting for the issue of acquisition debt specific for this transaction. In general, as per the table below, we have assumed a structure of acquisition debt made up of 80% Senior Term debt (Tranche A), 15% Senior Term debt (Tranche B) and 5% of Mezzanine debt facility. As detailed, although all them generate interests,

accounted in the P&L, only the two first instruments generate cash interests. The costs have been assumed as a standard margin plus 6M Euribor interest rate, which in this case results to be negative given the current economic environment. Term and repayment will be detailed later on, but they have been determined as per standard maturities for such kind of instruments, as follows:

Term Sheet						
	%	Margin	Cost of Debt	Interests	Repayment	Term
Senior Tranche A	80%	2.25%	2.12%	Cash	Yearly	7.0 Yrs
Senior Tranche B	15%	2.75%	2.62%	Cash	Bullet	8.0 Yrs
Mezzanine	5%	10.00%	10.00%	PIK	Bullet	9.0 Yrs
Euribor						
6M Inerest rate	16/03/2016	-0.13%				

As mentioned before, given that we consider a 100% acquisition of the OpCo by the HoldCo, the new entity, sometimes called "New fiscal group" is able to benefit from a tax consolidation resulting from an integration of its taxes to be paid at HoldCo level. Tax integration is only applicable when the HoldCo acquires the 95% or more of the OpCo shares. In order to compute the taxes really paid by the whole entity, here is the split of how the integration has been done:

Tax really paid HoldCo (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Transaction costs		(7)	(7)	(3)	-	-
Interests on acquisition debt		(47)	(44)	(40)	(37)	(34)
Deductible expenses at HoldCo		(54)	(51)	(44)	(37)	(34)
Tax rate		*24%*	*24%*	*24%*	*24%*	*24%*
Tax savings at HoldCo		**13**	**12**	**11**	**9**	**8**
OpCo tax to pay		(111)	(115)	(119)	(122)	(124)
Tax on dividend		(3)	(4)	(4)	(4)	(4)
(Tax paid)/Tax Credit		**(101)**	**(107)**	**(112)**	**(117)**	**(120)**

As per the table above, the HoldCo benefits from certain savings thanks to deduction of tax deductible items such as the transaction costs, the interest expenses on acquisition debt and other tax deductible expenses at HoldCo level. After the computation of the tax savings, we add them up with the actual amount of taxes to be paid from OpCo, which at the end is reduced thanks to such savings. But also, there is another important item that is taxable, the dividends from OpCo. We have assumed that, as per current regulation in most countries, only 5% of dividends are taxable. At the end, we obtain a

final amount of taxes to be paid to authorities, which is lower than the taxes that would have been to be paid without tax integration.

Tax rate on dividends	5.0%

The starting point of the HoldCo's Balance Sheet is the Sources & Uses of the acquisition, which we will explain in detail in the next section

On the Assets side, the first item we find is the stake of OpCo shares acquired, in our case will always be a 100% stake. Then, as explained, we find the transaction costs that have been capitalized and that are amortized over 2.5 years. Cash & Cash equivalents, will always be 0 at entry, as we are not injecting cash at acquisition, and will increase or decrease accordingly with the cash generation at the HoldCo level. As previously explained, the LBO valuation is based on the maximum amount of acquisition debt that can be raised to finance de transaction so that the HoldCo's cash balance is never negative. This is the reason why we will always see positive amounts of cash for all years except for one that will be 0, which corresponds to the year that determines the maximum amount of acquisition debt. In this particular case, the limit of acquisition debt comes from the cash flow generation capacity in year 2016.

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	3,482	3,482	3,482	3,482	3,482	3,482
Capitalized transaction costs	17	10	3	-	-	-
Cash & cash equivalents	-	0	77	170	277	397
Total Assets	**3,499**	**3,492**	**3,563**	**3,652**	**3,758**	**3,879**
Equity	1,676	1,868	2,137	2,423	2,726	3,042
Senior debt tranche A	1,458	1,250	1,042	833	625	417
Senior debt tranche B	273	273	273	273	273	273
Mezzanine debt	91	100	110	121	133	147
Total Equity & Liabilities	**3,499**	**3,492**	**3,563**	**3,652**	**3,758**	**3,879**
Net Financial Debt	1,823	1,624	1,348	1,058	755	440

On the Shareholders Equity & Liabilities side, we observe that the financial debt raised for the acquisition is the starting point at the end of year 2015 and starts declining as the repayment of acquisition debt takes place. It is also the case of the equity value, which at the end of 2015 corresponds to the amount of equity that has been invested. In our case we have assumed that the PE Fund has committed to the 100% of the Equity, but normally there are other investors in the Equity side. We see that the amount of Equity increases over the years as the amount of debt decreases due

to repayment. This reflects one of the drivers on value creation mentioned before, the deleverage of the company translates to an increase in value for shareholders. As the Mezzanine facility generates Paid-in-Kind interests (PIK), we observe that the amount is increasing over the years, as interests are being capitalized, and both, face value and interests, will be repaid at maturity. See below the debt repayment schedule for the three debt instruments involved:

Debt Repayment Schedule HoldCo (€m)		2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Senior debt tranche A	7yrs - Yearly	208	208	208	208	208	208	208	-	-
Senior debt tranche B	8yrs - Bullet	-	-	-	-	-	-	-	273	-
Mezzanine debt	9yrs - Bullet	-	-	-	-	-	-	-	-	215

As per the schedule above, the Tranche A is repaid yearly and linearly over 7 years, while the Tranche B and Mezzanine are repaid fully at maturity, after year 8 and year 9 respectively. These staggered terms of the debt correspond to what it is usually applied in such transactions, risky debt has longer maturity than senior debt, and it has a bullet repayment schedule.

Finally, the Cash Flow Statement for the HoldCo is built up with all previous mentioned items. Dividends and taxes received from the OpCo as inflows, and taxes really paid, interest expenses and debt repayment as outflows. Notice that only Tranches A and B of debt generate cash interest expenses. Also, as mentioned before, the 2016 cash balance is 0, being, in this particular case, the determinant for the acquisition debt amount to be raised.

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			236	311	324	335	345
Corporate tax received from OpCo			111	115	119	122	124
(Tax paid)/Tax Credit			(101)	(107)	(112)	(117)	(120)
Cash financial expense			(38)	(34)	(29)	(25)	(20)
Debt repayment			(208)	(208)	(208)	(208)	(208)
Available Cash			**0**	**77**	**93**	**107**	**121**

5.3.3. Valuation

Now that all financial statements have been explained in detail, is time to go through the LBO valuation itself. It is important to mention that this valuation and, more important, the assumptions made, have a direct impact to the previous detailed financial statements as everything is linked. In other words, imagine that, for example, the assumption of 100% acquisition of the OpCo is different or the costs of debt are higher or lower, this will have an impact on the valuation itself that at the

same time will determine different amounts of acquisition debt to be raised, different invested equity, among other changes in the statements.

Having said that, under the assumptions previously stated, our aim is to value the company by determining the maximum amount of leverage that the company is able to afford without running out of cash neither in the HoldCo nor in the OpCo. As said, with the minimum operating cash assumption made, we make sure that we will not run out of cash at the OpCo level. Then, we just need to make sure that the cash balance at the HoldCo level is always positive. To do so, what we have modeled is the limit on acquisition debt/2015 EBITDA that the company is able to raise such that in one of the coming years the cash balance is 0 at the HoldCo, and is never negative for the rest of years. Thanks to the solver function utility in Excel, we have been able to determine such limit. In the particular case of HUGO BOSS AG, the limit is approximately 3.1 times 2015 EBITDA:

Acquisition Debt / 2015 EBITDA	3.09x

Just to mention that in such kind of transactions, what it is usually done is manually impose this limit by fixing it between 3x-5x acquisition debt/EBITDA depending on the company, so that the amount of debt is directly determined. In other words, banks provide PE Funds with the amount of acquisition debt that they are able to offer. But in our case, we wanted to know exactly where the limit was in order to obtain the maximum leverage possible and thus the extreme valuation or, more appropriately, the "floor valuation", as the more leverage, the lower will be the valuation thanks to the leverage effect and lower amount of equity to be invested by the PE Fund.

Once we obtain the limit, automatically the maximum amount of acquisition debt is determined and thus the distribution of sources of founding:

Acquisition debt/2015 EBITDA: 3.09x

EBITDA 2015: €589.9m

Maximum acquisition debt: 3.09 x €589.9m = €1,823m

See below the Sources and Uses table for the particular case of HUGO BOSS AG:

Sources (€m)					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	1,458	42%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	273	8%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	91	3%
Total Acquisition Debt				**1,823**	**52%**
Invested Equity				**1,676**	**48%**
Total Sources				**3,499**	**100%**

Uses (€m)		
Purchase of 69m shares @ € 50.4/share	3,482	
Transaction Costs	17	
Total Uses	**3,499**	

Once determined the amount of acquisition debt, we should determine the amount of equity that investors will be able to invest to obtain a desired return. In general, we have assumed that the solely investor (PE Fund) will require a 20.0% IRR. This is one of the most determinant assumptions but, at the same time and as previously explained, this 20.0% is what usually PE Funds expect to extract from such kind of investments.

To do so, we first need to calculate the Enterprise Value at Exit. In order to compute the EV at Exit we will do it by using a multiple, particularly an EBITDA multiple, so that given the EBITDA at Exit and this multiple, we obtain an EV. After the corresponding adjustments we will find the Equity value and implied share price.

We have considered an Exit multiple which corresponds to the current market valuation EBITDA multiple. As we can see below, we have calculated it by adding the Market capitalization plus the current Net financial debt and dividing by the actual EBITDA result in 2015.

Entry at Jan 1st, 2016			
Market Cap	3,915	Purchase of shares	3,482
Net Debt 2015	95	Net Debt 2015	95
Enterprise value	**4,010**	**Implied EV**	**3,577**
EBITDA 2015	590	EBITDA 2015	590
EBITDA multiple 2015	**6.8x**	**EBITDA multiple paid**	**6.1x**

Exit at Dec 31st, 2020		Required investment at entry	
Exit EBITDA multiple	6.8x	IRR	20.0%
EBITDA 2020	684	CoC	2.5x
Enterprise value	**4,648**	**Invested Equity**	**1,676**
HoldCo Net debt	440		
OpCo Net debt	14		
Exit costs	23		
Equity value	**4,171**	**Implied share price**	**€ 50.4**

Once the EV at Exit is obtained, in this case, €4,648m, we subtract both remaining Net Financial debt at HoldCo and OpCo, as well as the Exit costs (assumed to be in all cases 0.5% of the EV at Exit), and we obtain the Equity Value of the company at Exit, in this case €4,171m.

Exit costs (as a % of Enterprise value at Exit)	0.5%

Then, given that our desired IRR is 20.0%, we discount this Equity Value to present value and we obtain the equity value that Funds can invest at acquisition in order to achieve a 20% IRR at exit, which in this particular case is €1,676m.

$$\frac{€4{,}171m}{(1+20.0\%)^{5\ years}} = €1{,}676m$$

This will be the total amount of Equity to be used as a source of financing that, together with the €1,823m of acquisition debt, represent a total source of funds of €3,499m. Then, this funds will be used to finance 100% of OpCo's shares plus the transaction costs. In the HUGO BOSS AG case, OpCo's shares are valued at €3,482m, which implies a share price of €50.4/share, and acquisition costs are €17m (0.5% of €3,482m), totaling €3,499m uses of funds (which balance with the source of funds).

At the end, we have obtained a valuation of €50.4/share that responds to a way of structure the acquisition that relies in huge leverage and a desired return for equity investors, obtaining in this case a lower valuation than the DCF and also than the market valuation.

In the following section we will analyze if there is a consistency between both valuations and whether the LBO tends to give lower valuations than DCF or not. In other words, we will evaluate several companies in order to observe in which context the valuations need to be applied and if they can be used indistinctly no matter the context or they are specific for particular context, such is an LBO transaction.

6. RESULTS

To evaluate the consistency of a DCF valuation with the price in a LBO context, we have valued 16 companies using the LBO valuation approach and we have compared them to the result given by a classical DCF valuation.

6.1. Selection of the sample

Even though in many LBO transactions the target company can be a non-listed firm, in our exercise for this paper we have selected a sample of listed firms in order to dispose of the information required for the valuation.

The selection of the sample has not been done randomly since not all companies are suitable to be acquired through a LBO. Key characteristics to look for when searching for a potential LBO candidate include:

- Low levels of debt
- Low future capital expenditure requirements
- Sustained and resilient cash flows
- Mature industry with feasible exit options

Selected companies and key characteristics (in m)						
Company	Industry	Country	Currency	2015 EBITDA	ND/ EBITDA	Capex/ Sales
Amadeus IT Holding SA	Software	Spain	EUR	1,476	1.2x	14%
Evonik Industries AG	Chemicals	Germany	EUR	2,428	(0.3)x	6%
Ingenico Group SA	Transaction Mgmt Systems	France	EUR	487	0.5x	3%
bpost SA	Courier Services	Belgium	EUR	555	(1.0)x	4%
HUGO BOSS AG	Retail - Discretionary	Germany	EUR	590	0.2x	5%
SPIE SA	Engineering Services	France	EUR	316	2.9x	1%
Refresco Gerber NV	Beverages	Netherlands	EUR	195	2.3x	3%
Applus Services SA	Commercial Services	Spain	EUR	198	3.4x	2%
BRAAS Monier Building Group SA	Construction Materials	Luxembourg	EUR	211	1.6x	5%
Merlin Entertainments	Entertainment Facilities	UK	GBP	402	2.1x	17%
Card Factory	Retail - Discretionary	UK	GBP	88	1.5x	3%
Broadleaf Co Ltd	Application Software	Japan	JPY	3,822	(1.6)x	5%
Hilton Worldwide Holdings	Gaming, Lodging & Restaurants	US	USD	2,763	3.6x	4%
Quintiles Transnational Holdings	Health Care	US	USD	774	1.9x	1%
Spirit Aerosystems Holdings	Aerospace & Defense	US	USD	1,051	0.2x	5%
Dunkin' Brands	Restaurants	US	USD	365	6.0x	4%

In the table above we can see the 16 selected companies, and their key characteristics that make them a good LBO target.

Most of the selected companies have already went through a LBO process with some of the biggest Private Equity firms today, which makes us more certain that they are good candidates.

6.2. Market valuation

As we have seen at the beginning of this paper, for listed firms, the quickest way to have a first valuation for them is by looking at their Market Capitalization.

In our case, the current share price of the valued companies will be used as a benchmark to compare both, DCF and LBO valuations.

In the table below we can see the selected companies and their current Market Capitalization and share price.

Market valuation of the sample (in m)						
Company	Currency	Date	2015 EBITDA	Number of shares	Market Cap	Share price
Amadeus IT Holding SA	EUR	16-Mar-16	1,476	437	16,181	37.06
Evonik Industries AG	EUR	16-Mar-16	2,428	466	12,419	26.65
Ingenico Group SA	EUR	16-Mar-16	487	61	5,491	90.49
bpost SA	EUR	16-Mar-16	555	200	4,881	24.41
HUGO BOSS AG	EUR	16-Mar-16	590	69	3,915	56.72
SPIE SA	EUR	16-Mar-16	316	154	2,612	16.95
Refresco Gerber NV	EUR	16-Mar-16	195	81	1,217	14.99
Applus Services SA	EUR	16-Mar-16	198	130	995	7.65
BRAAS Monier Building Group SA	EUR	16-Mar-16	211	39	940	24.00
Merlin Entertainments	GBP	16-Mar-16	402	1,014	4,686	4.62
Card Factory	GBP	16-Mar-16	88	341	1,148	3.37
Broadleaf Co Ltd	JPY	16-Mar-16	3,822	24	33,812	1,397.00
Hilton Worldwide Holdings	USD	16-Mar-16	2,763	987	20,964	21.23
Quintiles Transnational Holdings	USD	16-Mar-16	774	119	7,763	65.03
Spirit Aerosystems Holdings	USD	16-Mar-16	1,051	126	5,799	46.05
Dunkin' Brands	USD	16-Mar-16	365	93	4,280	46.20

6.3. DCF valuation results

We have carried 16 DCF valuations using the same procedure previously described in the example of HUGO BOSS AG. In the table below we can see a summary of the results obtained.

As we can observe, in most of the cases the DCF valuation gives us a premium when comparing the implied share price obtained with the current share price. Only in the case of Refresco Gerber NV and Merlin Entertainments we obtain a discount in the DCF valuation compared to the current market valuation.

DCF valuation of the sample (in m)										
Company	Currency	WACC	TGR	PV of FCF	%	TV	%	EV	Implied share price	Premium/ (Discount)
Amadeus IT Holding SA	EUR	5.7%	2.0%	5,735	30%	13,198	70%	18,934	39.27	6.0%
Evonik Industries AG	EUR	8.0%	1.5%	6,729	45%	8,230	55%	14,959	33.52	25.8%
Ingenico Group SA	EUR	7.4%	2.1%	2,973	39%	4,594	61%	7,567	120.54	33.2%
bpost SA	EUR	7.1%	1.5%	2,348	42%	3,257	58%	5,605	30.77	26.1%
HUGO BOSS AG	EUR	7.7%	1.5%	2,356	45%	2,922	55%	5,278	75.09	32.4%
SPIE SA	EUR	6.6%	1.5%	1,443	37%	2,407	63%	3,850	19.06	12.4%
Refresco Gerber NV	EUR	6.6%	1.5%	633	39%	985	61%	1,618	14.30	(4.6)%
Applus Services SA	EUR	7.5%	1.5%	938	43%	1,222	57%	2,160	11.37	48.7%
BRAAS Monier Building Group SA	EUR	8.1%	1.5%	840	46%	1,002	54%	1,842	38.46	60.2%
Merlin Entertainments	GBP	5.2%	2.5%	1,138	24%	3,658	76%	4,796	3.89	(15.9)%
Card Factory	GBP	7.2%	2.0%	541	39%	856	61%	1,397	3.72	10.4%
Broadleaf Co Ltd	JPY	7.4%	1.5%	16,458	45%	20,170	55%	36,628	1,761.32	26.1%
Hilton Worldwide Holdings	USD	7.6%	2.0%	14,712	40%	21,639	60%	36,351	26.75	26.0%
Quintiles Transnational Holdings	USD	6.9%	1.5%	4,288	39%	6,777	61%	11,065	80.20	23.3%
Spirit Aerosystems Holdings	USD	9.4%	2.0%	3,167	51%	3,028	49%	6,195	47.80	3.8%
Dunkin' Brands	USD	5.0%	1.5%	1,925	29%	4,749	71%	6,674	48.37	4.7%

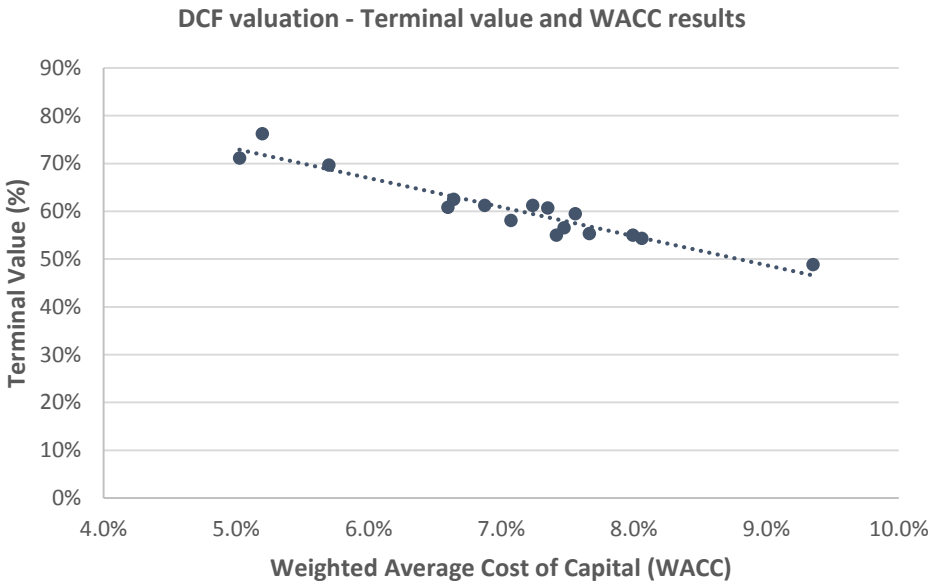
When analyzing a DCF valuation, it is always important to look at the percentage that the terminal value represents out of the total enterprise value.

If we look at the variables that appear in the terminal value formula:

$$TV = \frac{\frac{FCF_n * (1+g)}{(K-g)}}{(1+K)^n}$$

We can see that the variables determining the TV are the year end of the business plan (year n), the terminal growth rate and the WACC. In our case, all business plans have been built for the same number of years (2016 to 2025), and the terminal growth rates are very similar (1.5% to 2.5%).

Then, as we can also see in the graph below, the terminal value is highly correlated to the WACC, which differs among companies as they have different operating risks.



6.4. LBO valuation results

We have carried 16 LBO valuations using the same procedure previously described in the example of HUGO BOSS AG. In the table below we can see a summary of the results obtained.

LBO valuation of the sample (in m)									
Company	Currency	ND/ EBITDA	Desired IRR	Funds' Equity	%	Acquisition debt	%	Implied share price	Premium/ (Discount)
Amadeus IT Holding SA	EUR	1.2x	20%	7,145	57%	5,341	43%	28.46	(23.2)%
Evonik Industries AG	EUR	(0.3)x	20%	4,357	35%	7,921	65%	26.22	(1.6)%
Ingenico Group SA	EUR	0.5x	20%	3,194	63%	1,869	37%	83.02	(8.3)%
bpost SA	EUR	(1.0)x	20%	1,719	42%	2,349	58%	20.24	(17.1)%
HUGO BOSS AG	EUR	0.2x	20%	1,676	48%	1,823	52%	50.45	(11.1)%
SPIE SA	EUR	2.9x	20%	1,401	80%	341	20%	11.25	(33.6)%
Refresco Gerber NV	EUR	2.3x	20%	518	64%	294	36%	9.95	(33.6)%
Applus Services SA	EUR	3.4x	20%	562	61%	357	39%	7.04	(8.0)%
BRAAS Monier Building Group SA	EUR	1.6x	20%	452	51%	431	49%	22.44	(6.5)%
Merlin Entertainments	GBP	2.1x	20%	2,172	69%	956	31%	3.07	(33.6)%
Card Factory	GBP	1.5x	20%	571	59%	392	41%	2.81	(16.5)%
Broadleaf Co Ltd	JPY	(1.6)x	20%	14,546	58%	10,730	42%	1,039.12	(25.6)%
Hilton Worldwide Holdings	USD	3.6x	20%	11,214	53%	9,775	47%	21.15	(0.4)%
Quintiles Transnational Holdings	USD	1.9x	20%	4,042	58%	2,965	42%	58.40	(10.2)%
Spirit Aerosystems Holdings	USD	0.2x	20%	1,242	22%	4,516	78%	45.50	(1.2)%
Dunkin' Brands	USD	6.0x	20%	2,553	75%	847	25%	36.52	(21.0)%

As we could expect, in all cases the LBO valuation gives us a discount when comparing the implied share price obtained (with a target IRR requirement of 20%) with the market share price.

6.4.1. Key characteristics impact on the LBO valuation

In this section we will try to evaluate the impact that key characteristics of LBO targets have on their share price obtained with the LBO valuation approach.

As we have previously said, the key characteristics that we have looked for when searching for a potential LBO candidate are:

- Low levels of debt
- Low future capital expenditure requirements
- Sustained and resilient cash flows
- Mature industry with feasible exit options

As the resilience and sustainability of cash flows, and the characteristics of the industry are difficult measures to quantify, we will only be able to evaluate the first two characteristics, low levels of debt and low future capital expenditure requirements.

6.4.1.1. Linear Regression Analysis

In order to evaluate the relationship between these variables we will perform a linear regression analysis.

In general, a lineal regression between two variables has the following form:

$$y = \beta_0 + \beta_1 x$$

y is the dependant variable

x is the independent variable or explanatory variable

β_0 is the intercept. β_0 is the estimated value of y when x is 0

β_1 is the sample slope, which measures the estimated change in y as a result of a one unit change in x

In order to evaluate the Fitness of the lineal regression we will be looking at:

- Regression Statistics

  Multiple R: This is the correlation coefficient which measures how well the data clusters around our regression line. The closer this value is to 1, the more "linear" the data is. That is, we could use

x to predict to predict *y*. If this value is close to 0 there is no linear relationship between our variables.

R Square (R^2): This is the coefficient of determination. This measures the percentage of variation in the dependant variable that can be explained by the linear relationship between *x* and *y*. That is, how accurate the linear regression model is at predicting *y* based on *x*.

The total variation in *y* is made up of two parts:

- *SST*: total variation in *y*
- *SSR*: variation explained by the linear relationship between *x* and *y*
- *SSE*: variation associated with other factors besides the linear relationship
- *SST = SSE + SSR*
- Based on these, $R^2 = \frac{SSR}{SST}$

- **Hypothesis Testing**

Determine if there is overwhelming evidence at the α (significance) of a linear relationship between *x* and *y*. The hypothesis to be tested is:

$$H_0: \beta_1 = 0$$

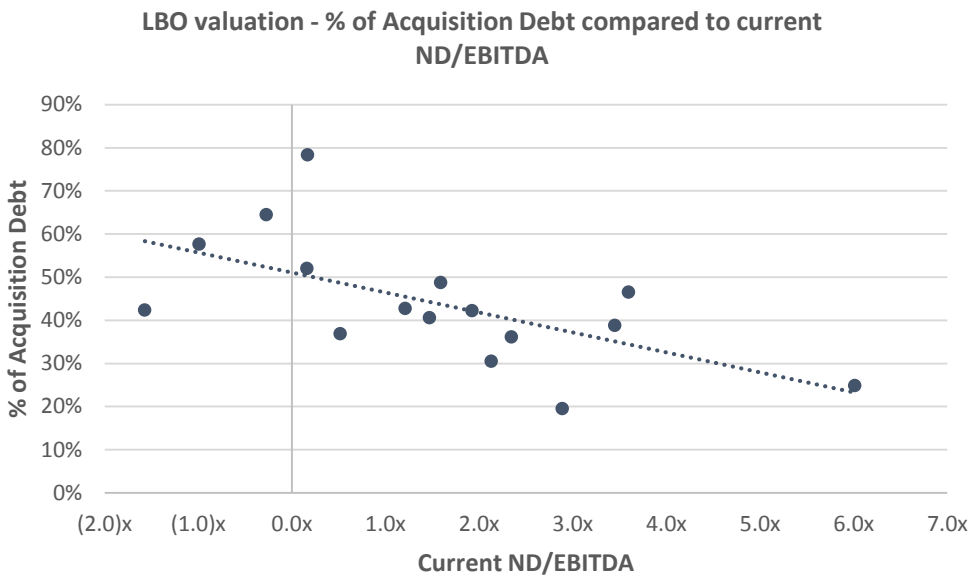
$$H_1: \beta_1 \neq 0$$

To evaluate if the null hypothesis is rejected or not, we use the P-value method:

- P-value: This is the probability of observing a test statistic more extreme than what we observed (assuming that the null hypothesis is true)
- The null hypothesis is rejected if the $P\text{-}value < \alpha$ (significance), and thus there is a linear relationship between *x* and *y*

6.4.1.2. Low levels of debt impact on LBO valuation

We have plotted below the percentage of acquisition debt, which is the maximum amount of debt that we can put given that the holding company never runs out of cash, on the vertical axis, and the current net debt to EBITDA ratio on the horizontal axis.



As we can see, there is a relationship between this two variables. Firms with lower levels of debt, compared to their EBITDA, are able to face higher amounts of acquisition debt.

Statistically, when we run a linear regression analysis, we observe that indeed these two variables have a linear relationship with a Multiple R of 0.6086 close to 1. However, a R^2 of 0.3704 means that the fitness of the regression is not high. In other words, there is a relationship between the current level of ND compared to EBITDA and the % of Acquisition debt but this is not the only explanatory variable of which depends the level of new debt to be raised, there are certainly other additional variables.

Regression Statistics	
Multiple R	0.6086
R Square	0.3704
Adjusted R Square	0.3255
Standard Error	0.1197
Observations	16

Given a significance level of $\alpha = 0.05$, as P-value $= 0.0123 < \alpha$, we can reject the null hypothesis (H_0: $\beta_1 = 0$), and we can conclude that the Current ND/EBITDA is an explanatory variable of % of Acquisition Debt in the following form:

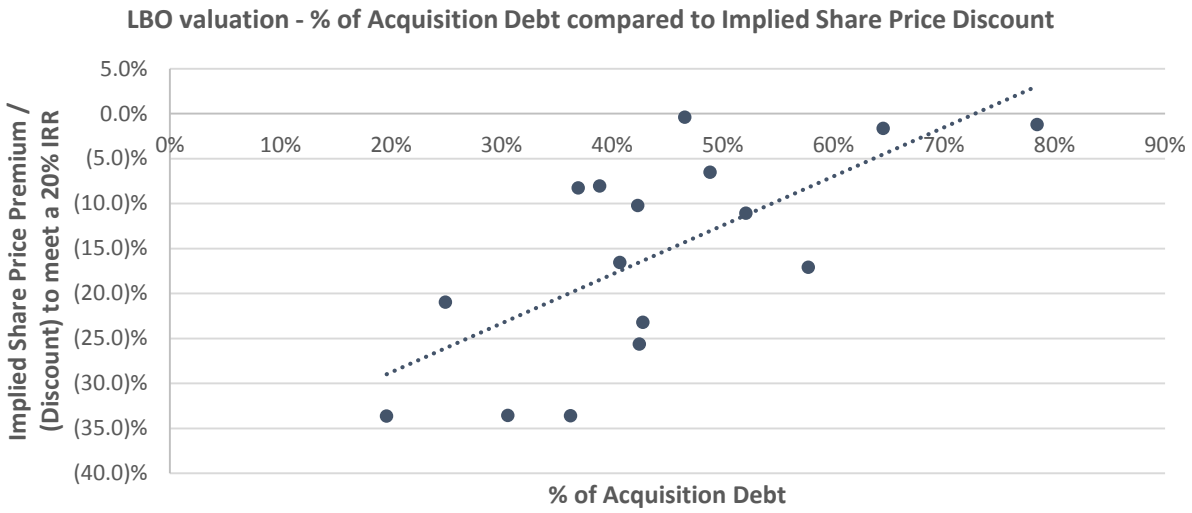
$$\% \text{ of Acquisition Debt} = 0.5109 - 0.0463 \text{ x (Current ND/EBITDA)}$$

See below the results for the linear regression analysis performed to the two variables:

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression (SSR)	1	0.1180	0.1180	8.2380	0.0123
Residual (SSE)	14	0.2005	0.0143		
Total (SST)	15	0.3185			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.5109	0.0389	13.1447	0.0000	0.4276	0.5943
Current ND/EBITDA	-0.0463	0.0161	-2.8702	0.0123	-0.0808	-0.0117

In the same way, we have plotted below the percentage of acquisition debt in the horizontal axis, and the implied share price discount that the LBO valuation approach gives us in the vertical axis. As we can observe, there is also a relationship between this two variables.



Statistically, when we run a linear regression analysis, we observe that indeed these two variables have a linear relationship with a Multiple R of 0.68 close to 1. However, a R^2 of 0.4624 means that the fitness of the regression is not extremely high.

Regression Statistics	
Multiple R	0.6800
R Square	0.4624
Adjusted R Square	0.4240
Standard Error	0.0885
Observations	16

In effect, there is a relationship between the % of Acquisition debt and the implied share price premium/(discount) with LBO, but this is not the only explanatory variable, there are certainly other additional variables that explain the amount of premium or discount with a LBO valuation.

Given a significance level of $\alpha = 0.05$, as P-value $= 0.0038 < \alpha$, we can reject the null hypothesis (H_0: $\beta_1 = 0$), and we can conclude that the % of Acquisition Debt is an explanatory variable of the Implied share price premium/(discount) with LBO in the following form:

Implied share price premium/(discount) with LBO = –0.3965 + 0.5442 x (% of Acquisition Debt)

See below the results for the linear regression analysis performed to the two variables:

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression (SSR)	1	0.0943	0.0943	12.0410	0.0038
Residual (SSE)	14	0.1097	0.0078		
Total (SST)	15	0.2040			

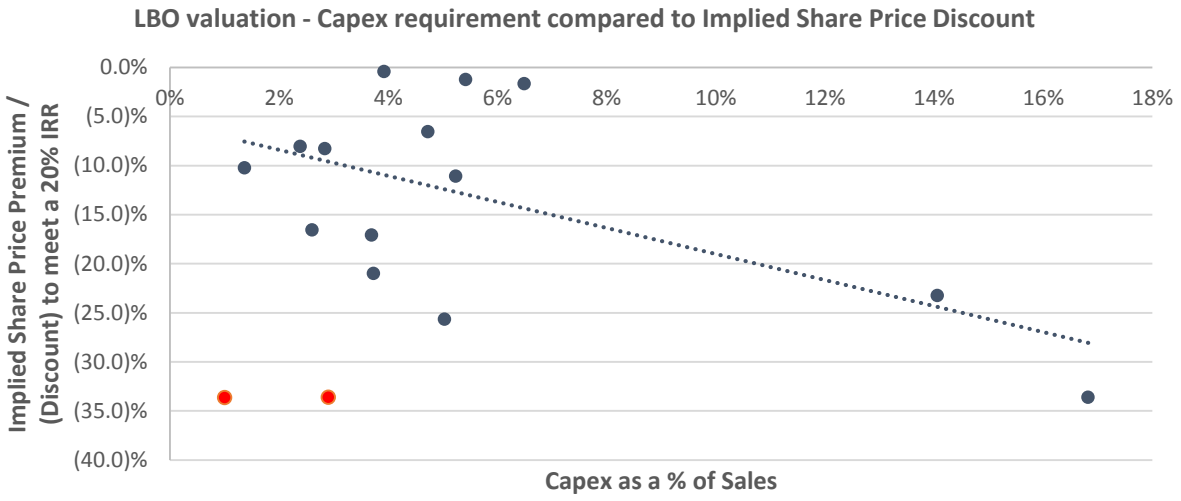
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.3965	0.0724	-5.4743	0.0001	-0.5518	-0.2411
% of Acquisition Debt	0.5442	0.1568	3.4700	0.0038	0.2078	0.8805

This relationship means that we need less share price discount with firms that can face higher amounts of acquisition debt. In other words, PE firms will be able to pay higher prices for companies that can sustain higher amounts of acquisition debt.

As a conclusion, we can say that, in our sample, firms with currently low levels of debt allow us to increase the amount of acquisition debt. Then, benefiting from a higher leverage effect, PE firms will be able to offer higher purchase prices while still achieving the targeted IRR of 20%. From the statistical analysis, we conclude that this relationship is significant but, at the same time, it is clear that there are other variables that can help to explain the amount of premium/(discount) in a LBO context, in other words, this amount does not only depend on one variable, of course.

6.4.1.3. Low future capital expenditure requirements impact on LBO valuation

In the below graph, we pretend to see the relationship between the required capital expenditure of each company and the implied share price discount obtained through the LBO valuation approach. As level of Capex is a key characteristic when looking for an LBO target, we expected to see higher share price discounts for higher levels of required Capex.



In effect, we can see that there is a relationship between the level of capex and the implied share price premium/(discount) with LBO, the higher the level of capex of the firm, the lower is the price that investors are willing to pay in a LBO context.

Statistically, when we run a linear regression analysis, we observe that indeed these two variables have a linear relationship. We have excluded two companies out of the sample, SPIE SA and Refresco Gerber NV, as their extreme results were significantly out of the observed trend. With this we obtain a Multiple R of 0.5849 closer to 1 than to 0. However, a R^2 of 0.3421 means that the fitness of the regression is not extremely high.

Regression Statistics	
Multiple R	0.5849
R Square	0.3421
Adjusted R Square	0.2873
Standard Error	0.0847
Observations	14

Given a significance level of $\alpha = 0.05$, as P-value $= 0.0280 < \alpha$, we can reject the null hypothesis (H_0: $\beta_1 = 0$), and we can conclude that the Capex as a % of Sales is an explanatory variable of the Implied share price premium/(discount) with LBO in the following form:

Implied share price premium/(discount) with LBO = –0.0574 – 1.3262 x (Capex as a % of Sales)

See below the results for the linear regression analysis performed to the two variables:

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression (SSR)	1	0.0447	0.0447	6.2401	0.0280
Residual (SSE)	12	0.0860	0.0072		
Total (SST)	13	0.1308			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.0574	0.0373	-1.5373	0.1502	-0.1388	0.0240
Capex as % of Sales	-1.3262	0.5309	-2.4980	0.0280	-2.4829	-0.1695

6.4.2. Multivariate analysis impact on LBO valuation

We have seen that specific key characteristics that investors look when approaching LBO targets have an impact on LBO valuation but at the same time the results have shown that additional variables might have an impact that better describe the discount in share price with LBO approach. For instance, the assumptions taken into consideration in the OpCo business plan during the life of the investment might have an impact on LBO valuation. In particular there are two variables that we think could have a significant impact on the valuation:

- Average growth in sales over the investment period
- Average EBITDA margin over the investment period

Going one step further will be to see what the impact is if we combine the key specific characteristics with the key assumptions made in the business plan. To do so, we will run a multilinear regression analysis to see how the combination of those variables is able to explain the discount in price obtained with LBO approach.

Combining the two key specific characteristics (% of Acquisition Debt and Capex as % of Sales with one of the assumptions made on business plan (i.e. Average Growth in Sales) we obtain the results shown in the table below.

Regression Statistics	
Multiple R	0.8840
R Square	0.7814
Adjusted R Square	0.7158
Standard Error	0.0535
Observations	14

Statistically, we observe that indeed the combination of these three variables end up with a strong multivariate model to explain the discount in price with LBO valuation approach. In particular, the results of the regression show Multiple R of 0.884, extremely close to 1, and a R^2 of 0.7814 also at high levels. In effect this means that the fitness of this regression model is higher than the previous analysis. In other words, the combination of these variables lead to a model that better explain the discount in price than the individual linear regressions previously done.

Given a significance level of $\alpha = 0.05$, as the different P-values of each of the variables are lower than α (significance level), we can reject the null hypothesis (H_0: $\beta_i = 0$, where i are each of the variables), and thus we can conclude that the % of Acquisition Debt, Capex as a % of Sales and Average Growth in Sales are explanatory variables of the Implied share price premium/(discount) with LBO in the following form (with a 95% of confidence):

Implied share price premium/(discount) with LBO = –0.4397 + 0.5576 x (% of Acquisition Debt) – – 1.9563 x (Capex as a % of Sales) + 2.4939 x (Average Growth in Sales)

See below the results for the linear regression analysis performed to the three variables:

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression (SSR)	3	0.1022	0.0341	11.9159	0.0012
Residual (SSE)	10	0.0286	0.0029		
Total (SST)	13	0.1308			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.4397	0.0925	-4.7556	0.0008	-0.6457	-0.2337
% of Acquisition Debt	0.5576	0.1252	4.4525	0.0012	0.2786	0.8367
Capex as % of Sales	-0.9563	0.3478	-2.7497	0.0205	-1.7312	-0.1814
Average Growth in Sales	2.4939	0.9353	2.6663	0.0236	0.4098	4.5780

In the same way, we have run the multilinear regression adding a new variable, the Average EBITDA margin. In this case, the results show that the addition of this new variable, at least in our sample of study, does not contribute to better explain the discount in price.

Regression Statistics	
Multiple R	0.8863
R Square	0.7856
Adjusted R Square	0.6903
Standard Error	0.0558
Observations	14

Even though Multiple R of 0.8863 and R^2 of 0.7856 are high, given a significance level of $\alpha = 0.05$, we obtain that the Average EBITDA margin variable has a P-value $= 0.6858 > \alpha$ (significance level), and thus we cannot reject the null hypothesis for this variable, in other words, it is not a good explanatory variable for the discount on share price in a LBO context.

See below the results for the linear regression analysis performed to the four variables:

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression (SSR)	4	0.1027	0.0257	8.2430	0.0044
Residual (SSE)	9	0.0280	0.0031		
Total (SST)	13	0.1308			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.4032	0.1301	-3.0982	0.0128	-0.6976	-0.1088
% of Acquisition Debt	0.5207	0.1578	3.2986	0.0093	0.1636	0.8777
Capex as % of Sales	-0.8879	0.3983	-2.2293	0.0528	-1.7888	0.0131
Average Growth in Sales	2.4359	0.9863	2.4697	0.0356	0.2047	4.6671
Average EBITDA margin	-0.0884	0.2115	-0.4179	0.6858	-0.5668	0.3901

A possible explanation would be that, for simplification purposes, when we have valued the 16 companies, we have assumed a constant EBITDA margin over the years of the investment when, in a real life situation, the company could expect a potential increase of this margin by improving its operations and efficiency.

To conclude, the results show that the combination of different explanatory variables lead to a strong multivariate model to explain the share price discount in a LBO context but, at the same time, we notice that other non-quantifiable variables, such as the resilience and sustainability of cash flows and the characteristics of the industry, might also have an impact on the LBO valuation.

6.5. Consistency of the LBO valuation with a DCF

The DCF valuation approach is rarely used by PE's investment teams when analyzing the acquisition of a company to their portfolio. Instead, they use the LBO valuation approach which we have previously described. With the two different valuation results obtained for the sample of 16 companies, we will evaluate the consistency of both approaches together with the current market valuation.

In order to analyze our results from a statistical point of view, we will first do an analysis of the significance of the differences between the DCF and LBO valuations using the market valuation as a benchmark. Finally, we will look for a 95% confidence interval of the DCF and LBO valuations' bias.

6.5.1. Analysis of the significance of the differences between the DCF and LBO valuations

The aim of this section is to estimate whether or not there is a significant bias between DCF and LBO valuations in the context of a LBO. In order to do this test, as we have previously said, we will use the current market valuation of each firm as a benchmark to compare both valuation methods.

As we can see in the table below, we have calculated the DCF bias with respect to the market valuation, and the same has been done for the LBO valuation, both expressed in percentage.

Market, DCF and LBO valuations of the sample						
Company	**Currency**	**Share Price**	**DCF valuation**	**LBO valuation**	**DCF vs Market**	**LBO vs Market**
Amadeus IT Holding SA	EUR	37.06	39.27	28.46	6.0%	(23.2)%
Evonik Industries AG	EUR	26.65	33.52	26.22	25.8%	(1.6)%
Ingenico Group SA	EUR	90.49	120.54	83.02	33.2%	(8.3)%
bpost SA	EUR	24.41	30.77	20.24	26.1%	(17.1)%
HUGO BOSS AG	EUR	56.72	75.09	50.45	32.4%	(11.1)%
SPIE SA	EUR	16.95	19.06	11.25	12.4%	(33.6)%
Refresco Gerber NV	EUR	14.99	14.30	9.95	(4.6)%	(33.6)%
Applus Services SA	EUR	7.65	11.37	7.04	48.7%	(8.0)%
BRAAS Monier Building Group SA	EUR	24.00	38.46	22.44	60.2%	(6.5)%
Merlin Entertainments	GBP	4.62	3.89	3.07	(15.9)%	(33.6)%
Card Factory	GBP	3.37	3.72	2.81	10.4%	(16.5)%
Broadleaf Co Ltd	JPY	1,397.00	1,761.32	1,039.12	26.1%	(25.6)%
Hilton Worldwide Holdings	USD	21.23	26.75	21.15	26.0%	(0.4)%
Quintiles Transnational Holdings	USD	65.03	80.20	58.40	23.3%	(10.2)%
Spirit Aerosystems Holdings	USD	46.05	47.80	45.50	3.8%	(1.2)%
Dunkin' Brands	USD	46.20	48.37	36.52	4.7%	(21.0)%
Average					**19.9%**	**(15.7)%**

6.5.1.1. Description of the test

The proposed test can take two forms. It will be a traditional Student's test if the standard deviations of the relative differences being compared are equal; on the other hand, if the standard deviations are different, an Aspin-Welch test should be employed.

In this regard it is first necessary to conduct a comparison test of the standard deviations of the relative differences to be compared. For this purpose we use the property for which the variable T below obeys a Fisher-Snedecor law.

Let:

$$T = \frac{S_X^2}{S_Y^2}\frac{\sigma_Q^2}{\sigma_P^2}$$

T obeys a Fisher-Snedecor law for parameters $n_P - 1$ and $n_Q - 1$ [shown below as: $F(n_P - 1, n_Q - 1)$] where:

S_X^2 is the square of the standard deviation of relative differences found for a first sample

S_Y^2 is the square of the standard deviation of relative differences found for a second sample

σ_P^2 is the variance of the of the relative differences for all the operations from which the first sample was obtained

σ_Q^2 is the variance of the of the relative differences for all the operations from which the second sample was obtained

n_P is the size of the first sample, and n_Q the size of the second sample

The test for equality of variances amounts to assuming that $\sigma_P^2 = \sigma_Q^2$. Under this assumption:

$$T_0 = \frac{S_X^2}{S_Y^2} \text{ obeys F}(n_P - 1, n_Q - 1)$$

We then calculate, using the compared samples, the number t_0 that satisfies:

$$t_0 = \frac{S_X^2}{S_Y^2}$$

The table for the Fisher-Snedecor law provides the value of the real number c, such that:

$$P[T>c] = 5\% \text{ where T obeys the law } F(m,n)$$

Thus, if $t_0 > c$, the assumption of equality of standard deviations must be rejected, with a 5% chance of being wrong. On the other hand if $t_0 < c$, the assumption of equality of standard deviations may be accepted, with a 5% chance of error.

Assuming that the standard deviations are equal, the comparison test for the means obtained from the two samples relies on the property under which the variable T below obeys a Student's law.

Let:

$$T = \frac{\bar{X} - \bar{Y} - (m_P - m_Q)}{\sqrt{\frac{(n_P - 1)S_X^2 + (n_Q - 1)S_Y^2}{n_P + n_Q - 2}} \sqrt{\frac{1}{n_P} + \frac{1}{n_Q}}}$$

T obeys a Student's law with $n_P + n_Q - 2$ degrees of freedom.

Thus, assuming $m_P = m_Q$:

$$T_0 = \frac{\bar{X} - \bar{Y}}{\sqrt{\frac{(n_P - 1)S_X^2 + (n_Q - 1)S_Y^2}{n_P + n_Q - 2}} \sqrt{\frac{1}{n_P} + \frac{1}{n_Q}}}$$

T_0 obeys a Student's Law with $n_P + n_Q - 2$ degrees of freedom.

Using the compared samples, we then would calculate the number:

$$t_0 = \frac{\bar{X} - \bar{Y}}{\sqrt{\frac{(n_P - 1)S_X^2 + (n_Q - 1)S_Y^2}{n_P + n_Q - 2}} \sqrt{\frac{1}{n_P} + \frac{1}{n_Q}}}$$

It is also possible to calculate the value of the real number c such that:

$$P[-c<T<c] = 1-\alpha$$

where T is a Student variable.

In this case:

$$c = F^{-1}(1 - \frac{\alpha}{2})$$

where F is the distribution function of Student's law.

Thus for a confidence level of 95%, $\alpha = 5\%$ and $c = F^{-1}\left(1 - \frac{0.05}{2}\right) = F^{-1}(0.975)$ which can be obtained directly from the Student's law table.

Consequently, if $-c < t_0 < c$, then the assumption of equality of means may be accepted with a 5% chance of error. On the other hand if $t_0 > c$ or if $t_0 < -c$, the means may be considered to be significantly different, with a 5% chance of error.

If the unknown standard deviations are different, which will be in our case, the Aspin-Welch test can be used.

In this case, assuming that the means are equal, the variable T below obeys a Student's law.

$$T = \frac{\bar{X} - \bar{Y}}{\sqrt{\frac{S_X^2}{n_P} + \frac{S_Y^2}{n_Q}}}$$

T obeys a Student's law with n degrees of freedom, where:

$$n = \frac{\left(\frac{S_X^2}{n_P} + \frac{S_Y^2}{n_Q}\right)^2}{\frac{\left(\frac{S_X^2}{n_P}\right)^2}{n_P - 1} + \frac{\left(\frac{S_Y^2}{n_Q}\right)^2}{n_Q - 1}}$$

Finally, the decision rule is then the same as in the traditional Student's test.

6.5.1.2. Test for equality of variances

The table below shows the information employed in the F-test for equality of variances:

Test for equality of variances (F-Test)		
	DCF vs Market	*LBO vs Market*
Mean	19.9%	-15.7%
Variance	3.8%	1.4%
Observations	16	16
Degrees of freedom	15	15
F	2.7743	
P(F<=f) unilateral	0.0284	
Critical value for F (unilateral)	2.4034	

Assuming that the variances are equal, the probability that T_0 is greater than 2.4034—this number is called the "critical value for F (unilateral)" in the table above—is only 5%. Thus as long as t_0 is greater than 2.4034, which in this case is 2.7743, we may conclude, with a 5% chance of error, that the variances of DCF bias against the market and LBO bias against the market are significantly different. Then, as we have seen in the description of this test, we will have to run an Aspin-Welch test.

6.5.1.3. Test for equality of means

The table below shows the information employed in the Aspin-Welch test for equality of means:

Test for equality of means (Aspin-Welch Test)		
	DCF vs Market	*LBO vs Market*
Mean	19.9%	-15.7%
Variance	3.8%	1.4%
Observations	16	16
Hypothetical difference of means	0	
Degrees of freedom	25	
Statistical t	6.2904	
P(T<=t) unilateral	0.0000	
Critical value for t (unilateral)	1.7081	
P(T<=t) bilateral	0.0000	
Critical value for t (bilateral)	2.0595	

According to the above table, if the DCF and LBO biases are equal, there is a 95% chance that t lies between -2.0595 and +2.0595. As long as t_0, which is equal to 6.2904, lies outside this interval, we may conclude, with a 5% chance of error, that the means of DCF bias against the market and LBO bias against the market are significantly different.

Finally, as the market valuation is a reference point used to have a relative difference for both valuation approaches, we can say that on the basis of the 16 valuations done and with a 95% probability there is a bias between the DCF valuation and the LBO valuation.

6.5.2. 95% confidence interval of the DCF and LBO valuations' bias (Student test)

Now that we know that there is a significant bias between the DCF and LBO valuations, we will look for a confidence interval of this bias by using a student test.

Each company of the sample gives us a relative difference between the DCF valuation and the LBO valuation, which we have expressed in percentage. Let's assume that this result is a normal random variable. This assumption seems reasonable since the relative difference can hardly be foreseen and the companies have been chosen randomly (not randomly from all companies but randomly from the universe of companies that are suitable for a LBO). On top of that, if we peek to the distribution obtained with the 16 tests, we guess a certain concentration around a given mean and certain variance.

In the table below we can see the relative difference between the DCF and LBO valuations obtained with the 16 tests.

Differences between the DCF and LBO valuations of the sample					
Company	**Currency**	**DCF valuation**	**LBO valuation**	**Absolute Difference**	**Relative Difference**
Amadeus IT Holding SA	EUR	39.27	28.46	10.82	27.5%
Evonik Industries AG	EUR	33.52	26.22	7.31	21.8%
Ingenico Group SA	EUR	120.54	83.02	37.52	31.1%
bpost SA	EUR	30.77	20.24	10.53	34.2%
HUGO BOSS AG	EUR	75.09	50.45	24.64	32.8%
SPIE SA	EUR	19.06	11.25	7.81	41.0%
Refresco Gerber NV	EUR	14.30	9.95	4.35	30.4%
Applus Services SA	EUR	11.37	7.04	4.34	38.1%
BRAAS Monier Building Group SA	EUR	38.46	22.44	16.02	41.7%
Merlin Entertainments	GBP	3.89	3.07	0.82	21.0%
Card Factory	GBP	3.72	2.81	0.91	24.4%
Broadleaf Co Ltd	JPY	1,761.32	1,039.12	722.20	41.0%
Hilton Worldwide Holdings	USD	26.75	21.15	5.60	20.9%
Quintiles Transnational Holdings	USD	80.20	58.40	21.80	27.2%
Spirit Aerosystems Holdings	USD	47.80	45.50	2.30	4.8%
Dunkin' Brands	USD	48.37	36.52	11.85	24.5%
Average					**28.909%**

Assuming that the relative difference is normally distributed, the Student Test will allow us to obtain the distribution of the mean for the random variable.

6.5.2.1. Student distribution theorem

Theorem: Let $x_1, \ldots, x_n$ be the numbers observed in a sample from a normal distribution $x \sim N(\mu, \sigma^2)$. The sample mean and sample variance are respectively:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

$$S = \frac{1}{n-1}\sum_{i=1}^{n} (x_i - \bar{x})^2$$

Then $t = \frac{\bar{x}-\mu_0}{\sqrt{S/n}}$ follows a Student Law with $n - 1$ degrees of freedom.

We deduce that $\mu_0 = \bar{x} + t\sqrt{S/n}$ follows a Student Law with $n - 1$ degrees of freedom, centered in $\bar{x}$ and dilated by a factor $\sqrt{S/n}$.

Finally, the α-confidence interval for μ_0 is given by:

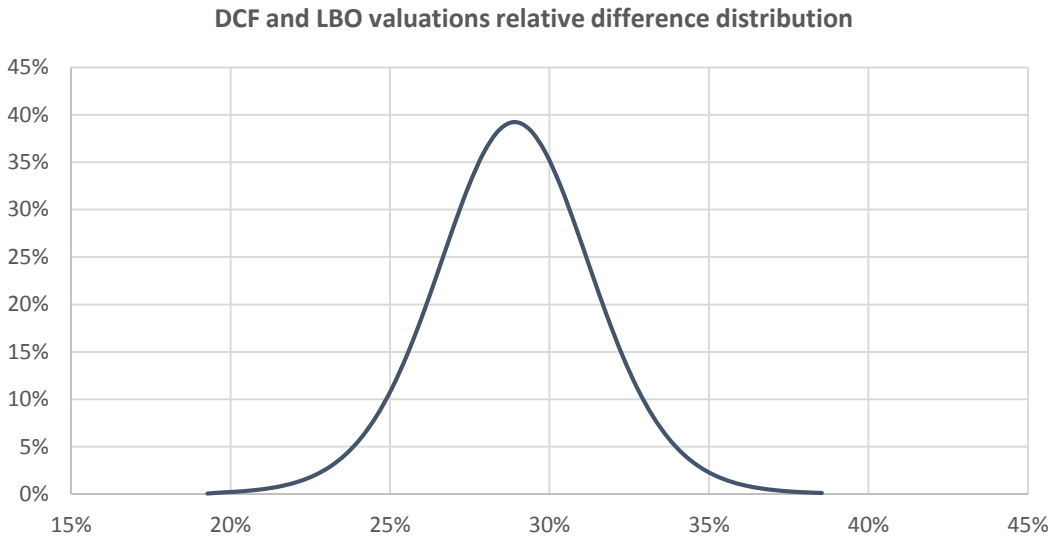
$$\left[\bar{x} - t^{n-1}_{(1-\alpha)/2}\sqrt{\frac{S}{n}}, \quad \bar{x} + t^{n-1}_{(1-\alpha)/2}\sqrt{\frac{S}{n}},\right]$$

Where t^k_γ is the γ-quantile of the Student Law with k degrees of freedom.

6.5.2.2. 95% confidence interval for the mean

According to the previous theorem, we can draw the distribution probability of the mean of the relative difference $\mu_0 = \bar{x} + t\sqrt{S/n}$, where $n = 16$, $\bar{x}$ is the empirical mean, t is a 15-Student Law and S is the variance of the sample.

Then, we do it for the relative difference between DCF and LBO valuations. The distribution presented below is a Student Law with $n - 1 = 15$ degrees of freedom calibrated with the results of the 16 tests.



We will now compute the 95% confidence interval of the mean of the relative difference between DCF and LBO valuations.

Confidence interval calculation	
S	0.928%
n	16
$t^{n-1=15}_{(1-95\%)/2}$	2.131
$t^{n-1=15}_{(1-95\%)/2}\sqrt{S/n}$	5.1%
Mean	28.9%
Confidence interval	**23.8%** **34.0%**

Then, as we could expect, the DCF valuation has a 95% probability to be between 23.8% and 34.0% higher than the LBO valuation. Of course we recall that we are under the assumption that the relative difference between both valuations is normally distributed.

We recall as well that this result does not mean that each valuation will give us a bias inside this confidence interval, but that the average of this bias, on one millions valuations for instance, has a 95% probability to be in this interval.

7. CONCLUSION

As previously stated, the purpose of this paper was to see the consistency of the DCF valuation approach with the price in a LBO context. In other words, what we have done is valuing companies suitable for a LBO with both methodologies, the DCF valuation approach and the LBO valuation approach.

On the whole, we would like to modestly draw two main conclusions from our work.

Firstly, and additionally to the main purpose of this paper, we have seen which impact key characteristics of LBO targets, such as low levels of debt or low capital expenditure requirements, have on prices in a LBO context. In our sample, we have found that firms with currently low levels of debt are able to sustain higher amounts of acquisition debt, which simultaneously implies obtaining higher valuations in a LBO context. Similarly, we have obtained higher price discounts for companies requiring higher capital expenditures. Statistically, we concluded that both relationships are significant, but at the same we also see that there must be other variables explaining prices in a LBO context. Not surprisingly, we have seen that business plan assumptions, in particular average growth in sales, are also key factors helping to explain the valuations obtained. By doing a multilinear regression of the significant variables (acquisition debt, capital expenditure requirements and average growth in sales) we have been able to better explain the discounts in price obtained, but still with a gap that should be explained by other variables. In fact, as many non-quantifiable variables, such as the resilience and sustainability of cash flows and the characteristics of the industry, come into play when determining the price in a LBO context, our results seem very reasonable.

Secondly, when analyzing the consistency of the DCF approach with the LBO approach, we have obtained significantly different results for both methods. In fact, we can say that on the basis of the 16 valuations done, and with a 95% probability, there is a bias between the DCF valuations and the LBO valuations. By using a student distribution, we have built a confidence interval of this bias. Not surprisingly, the result obtained is that, on the basis of our sample, the DCF valuation has a 95% probability to be between 24% and 34% higher than the price in a LBO context.

The exercise done in this paper is a clear indication that, in the context of a LBO, valuing the target company using the LBO valuation method seems more appropriate than using classical methods like the DCF approach. The LBO method is a transaction specific valuation approach, while the DCF is more general. More importantly, as already mentioned, the LBO approach models capital structure changes over the time, which is a key value creation lever in LBO transactions, while DCF assumes the optimal

capital structure to be constant over the time. In the same way, the LBO method takes into account another key value creation lever, the exit valuation, while the DCF assumes a terminal valuation without a disposal of the company.

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9. APPENDIX

In the following pages you can find the details of the 16 LBO and DCF models computed for the exercise of this paper. The companies are:

1. Amadeus IT Holding SA
2. Evonik Industries AG
3. Ingenico Group SA
4. Bpost SA
5. HUGO BOSS AG
6. SPIE SA
7. Refresco Gerber NV
8. Applus Services SA
9. BRAAS Monier Building Group SA
10. Merlin Entertainments
11. Card Factory
12. Broadleaf Co Ltd
13. Hilton Worldwide Holdings
14. Quintiles Transnational Holdings
15. Spirit Aerosystems Holdings
16. Dunkin' Brands

Amadeus IT Holding SA

SUMMARY TABLE (€m)

Market Valuation		
Net Debt 2015	10%	1,786
Market capitalization	90%	16,181
Number of shares (m)		*437*
Enterprise Value	**100%**	**17,967**
EBITDA 2015		1,476
Implied EV/EBITDA 2015		**12.2x**
Market Capitalization		16,181
Share Price (as of 14-Mar-16)		**€ 37.1**

DCF Valuation		
WACC		5.7%
Perpetual Growth		2.0%
Sum of Disc FCF (16-25)	30%	5,735
Terminal Value	70%	13,198
Enterprise Value	**100%**	**18,934**
Net Debt 2015		1,786
Equity Value		17,147
Implied Share Price		**€ 39.3**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	57%	7,145
Acquisition Debt	43%	5,341
Total Sources	**100%**	**12,487**
Purchase of shares		12,424
Transaction costs		62
Total Uses		**12,487**
Equity Value		12,424
Implied Share Price		**€ 28.5**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (€m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	1,113	1,164	1,213	1,259	1,302	1,341	1,378	1,414	1,448	1,480
NOPAT	757	791	825	856	885	912	937	961	985	1,006
Tax rate (%)	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*
+ D&A	437	457	476	494	511	526	541	555	568	581
- Capex	(546)	(571)	(595)	(617)	(638)	(658)	(676)	(694)	(710)	(726)
- Δ in Working Capital	35	16	15	14	13	12	12	11	11	10
Unlevered Free Cash Flow	**683**	**693**	**721**	**747**	**771**	**793**	**814**	**834**	**853**	**871**
Discount factor	95%	90%	85%	80%	76%	72%	68%	64%	61%	57%
Present Value of FCF	**646**	**621**	**611**	**599**	**584**	**568**	**552**	**535**	**518**	**501**

WACC CALCULATIONS

Risk free rate (Euro generic 10yr bond)	1.0%
Market Risk Premium (Damodaran W. Europe)	7.5%
Re-levered beta	0.68
Cost of Equity	**6.1%**
Pre-tax Cost of Debt	2.9%
Tax rate	32.0%
Cost of Debt	**2.0%**
WACC	**5.7%**
TGR	2.0%

VALUATION (€m)

Sum of discounted FCF (2016-25)	30%	5,735
Terminal Value	70%	13,198
Enterprise Value	**100%**	**18,934**
Net Debt 2015		1,786
Minorities		-
Equity Value		**17,147**
Number of shares (m)		*437*
Implied Share Price		**€ 39.3**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	3,418	3,913	4,108	4,297	4,478	4,648	4,806
growth (%)		*14%*	*5%*	*5%*	*4%*	*4%*	*3%*
EBITDA	1,313	1,476	1,549	1,621	1,689	1,753	1,813
margin (%)	*38%*	*38%*	*38%*	*38%*	*38%*	*38%*	*38%*
D&A	(358)	(423)	(437)	(457)	(476)	(494)	(511)
D&A/Sales (%)	*10%*	*11%*	*11%*	*11%*	*11%*	*11%*	*11%*
EBIT	956	1,053	1,113	1,164	1,213	1,259	1,302
(Net interests)	(56)	(51)	(65)	(65)	(66)	(67)	(68)
Cost of net debt	*0%*	*3%*	*4%*	*4%*	*3%*	*3%*	*3%*
Profit before tax	899	1,002	1,048	1,098	1,147	1,192	1,234
(Corporate tax)	(269)	(321)	(335)	(351)	(367)	(381)	(395)
Corporate tax rate	*30%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*
Net income	**631**	**681**	**712**	**747**	**780**	**810**	**839**

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	5,242	5,688	5,796	5,910	6,029	6,152	6,280
Working Capital	(307)	(314)	(349)	(365)	(380)	(395)	(408)
Other Current Assets	264	295	295	295	295	295	295
Capital Employed	**5,199**	**5,669**	**5,743**	**5,840**	**5,944**	**6,053**	**6,167**
Shareholder's Equity	1,867	2,297	2,329	2,364	2,396	2,427	2,456
Net Financial Debt	1,912	1,786	1,828	1,892	1,962	2,040	2,126
Other Liabilities	1,420	1,585	1,585	1,585	1,585	1,585	1,585
Invested Capital	**5,199**	**5,669**	**5,743**	**5,840**	**5,944**	**6,053**	**6,167**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			1,549	1,621	1,689	1,753	1,813
Tax Expense			(335)	(351)	(367)	(381)	(395)
Capital Expenditure			(546)	(571)	(595)	(617)	(638)
-Δ in Working Capital			35	16	15	14	13
Net Interests			(65)	(65)	(66)	(67)	(68)
Cash flow before dividends			**639**	**649**	**676**	**702**	**725**
Dividends paid to HoldCo			(681)	(712)	(747)	(780)	(810)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**(42)**	**(63)**	**(71)**	**(78)**	**(85)**

HOLDING COMPANY ACCOUNTS

P&L (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		681	712	747	780	810
Corporate tax received from OpCo		335	351	367	381	395
Transaction costs amortization		(25)	(25)	(12)	-	-
Interests on acquisition debt		(138)	(128)	(118)	(108)	(99)
of which tranche A (Cash)		*(91)*	*(78)*	*(65)*	*(52)*	*(39)*
of which tranche B (Cash)		*(21)*	*(21)*	*(21)*	*(21)*	*(21)*
of which Mezzanine (PIK)		*(27)*	*(29)*	*(32)*	*(36)*	*(39)*
Income before tax		**853**	**911**	**983**	**1,053**	**1,106**
(Tax paid)/Tax Credit		(294)	(314)	(337)	(359)	(376)
Net Income		**559**	**597**	**646**	**694**	**730**

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	12,424	12,424	12,424	12,424	12,424	12,424
Capitalized transaction costs	62	37	12	-	-	-
Cash & cash equivalents	-	0	41	121	240	399
Total Assets	**12,487**	**12,462**	**12,477**	**12,545**	**12,664**	**12,823**
Equity	7,145	7,704	8,301	8,947	9,641	10,371
Senior debt tranche A	4,273	3,663	3,052	2,442	1,831	1,221
Senior debt tranche B	801	801	801	801	801	801
Mezzanine debt	267	294	323	355	391	430
Total Equity & Liabilities	**12,487**	**12,462**	**12,477**	**12,545**	**12,664**	**12,823**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			681	712	747	780	810
Corporate tax received from OpCo			335	351	367	381	395
(Tax paid)/Tax Credit			(294)	(314)	(337)	(359)	(376)
Cash financial expense			(112)	(99)	(86)	(73)	(60)
Debt repayment			(610)	(610)	(610)	(610)	(610)
Available Cash			**0**	**41**	**81**	**119**	**159**

VALUATION (€m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	12.2x
EBITDA 2020	1,813
Enterprise value	**22,069**
HoldCo Net debt	2,053
OpCo Net debt	2,126
Exit costs	110
Equity value	**17,780**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**7,145**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	4,273	34%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	801	6%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	267	2%
Total Acquisition Debt				**5,341**	**43%**
Invested Equity				**7,145**	**57%**
Total Sources				**12,487**	**100%**

Uses		
Purchase of 436.6m shares @ € 28.5/share	12,424	
Transaction Costs	62	
Total Uses	**12,487**	

Evonik Industries AG

SUMMARY TABLE (€m)

Market Valuation		
Net Debt 2015	(6)%	(662)
Market capitalization	106%	12,419
Number of shares (m)		*466*
Enterprise Value	**100%**	**11,757**
EBITDA 2015		2,428
Implied EV/EBITDA 2015		**4.8x**
Market Capitalization		12,419
Share Price (as of 14-Mar-16)		**€ 26.7**

DCF Valuation		
WACC		8.0%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	45%	6,729
Terminal Value	55%	8,230
Enterprise Value	**100%**	**14,959**
Net Debt 2015		(662)
Equity Value		15,621
Implied Share Price		**€ 33.5**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	35%	4,357
Acquisition Debt	65%	7,921
Total Sources	**100%**	**12,278**
Purchase of shares		12,216
Transaction costs		61
Total Uses		**12,278**
Equity Value		12,216
Implied Share Price		**€ 26.2**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (€m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	1,788	1,870	1,949	2,023	2,092	2,155	2,213	2,266	2,313	2,355
NOPAT	1,270	1,328	1,384	1,436	1,485	1,530	1,571	1,609	1,643	1,672
Tax rate (%)	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*
+ D&A	761	796	830	861	890	917	942	965	985	1,003
- Capex	(1,082)	(1,132)	(1,179)	(1,224)	(1,266)	(1,304)	(1,339)	(1,371)	(1,400)	(1,425)
- Δ in Working Capital	(174)	(99)	(94)	(89)	(82)	(75)	(70)	(64)	(57)	(50)
Unlevered Free Cash Flow	**775**	**894**	**940**	**985**	**1,028**	**1,068**	**1,104**	**1,139**	**1,171**	**1,200**
Discount factor	93%	86%	79%	74%	68%	63%	58%	54%	50%	46%
Present Value of FCF	**717**	**766**	**746**	**724**	**699**	**673**	**645**	**615**	**586**	**556**

WACC CALCULATIONS

Risk free rate (Euro generic 10yr bond)	1.0%
Market Risk Premium (Damodaran W. Europe)	7.5%
Re-levered beta	0.91
Cost of Equity	**7.8%**
Pre-tax Cost of Debt	4.3%
Tax rate	29.0%
Cost of Debt	**3.1%**
WACC	**8.0%**
TGR	1.5%

VALUATION (€m)

Sum of discounted FCF (2016-25)	45%	6,729
Terminal Value	55%	8,230
Enterprise Value	**100%**	**14,959**
Net Debt 2015		(662)
Minorities		-
Equity Value		**15,621**
Number of shares (m)		*466*
Implied Share Price		**€ 33.5**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	12,917	13,507	14,182	14,835	15,458	16,045	16,591
growth (%)		*5%*	*5%*	*5%*	*4%*	*4%*	*3%*
EBITDA	1,733	2,428	2,549	2,667	2,779	2,884	2,982
margin (%)	*13%*	*18%*	*18%*	*18%*	*18%*	*18%*	*18%*
D&A	(656)	(764)	(761)	(796)	(830)	(861)	(890)
D&A/Sales (%)	*5%*	*6%*	*5%*	*5%*	*5%*	*5%*	*5%*
EBIT	1,077	1,664	1,788	1,870	1,949	2,023	2,092
(Net interests)	(235)	(223)	(49)	(52)	(56)	(60)	(64)
Cost of net debt	*0%*	*104%*	*-7%*	*-13%*	*-1047%*	*15%*	*8%*
Profit before tax	842	1,441	1,739	1,819	1,893	1,963	2,028
(Corporate tax)	(252)	(422)	(504)	(527)	(549)	(569)	(588)
Corporate tax rate	*30%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*
Net income	**590**	**1,019**	**1,235**	**1,291**	**1,344**	**1,394**	**1,440**

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	10,251	10,320	10,641	10,976	11,326	11,689	12,064
Working Capital	2,020	1,968	2,142	2,241	2,335	2,424	2,506
Other Current Assets	1,015	741	741	741	741	741	741
Capital Employed	**13,286**	**13,029**	**13,524**	**13,958**	**14,402**	**14,853**	**15,311**
Shareholder's Equity	6,522	7,576	7,792	7,848	7,901	7,951	8,320
Net Financial Debt	214	(662)	(383)	(5)	385	787	876
Other Liabilities	6,550	6,115	6,115	6,115	6,115	6,115	6,115
Invested Capital	**13,286**	**13,029**	**13,524**	**13,958**	**14,402**	**14,853**	**15,311**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			2,549	2,667	2,779	2,884	2,982
Tax Expense			(504)	(527)	(549)	(569)	(588)
Capital Expenditure			(1,082)	(1,132)	(1,179)	(1,224)	(1,266)
-Δ in Working Capital			(174)	(99)	(94)	(89)	(82)
Net Interests			(49)	(52)	(56)	(60)	(64)
Cash flow before dividends			**740**	**857**	**901**	**942**	**982**
Dividends paid to HoldCo			(1,019)	(1,235)	(1,291)	(1,344)	(1,071)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*77%*
Available Cash			**(279)**	**(378)**	**(391)**	**(402)**	**(89)**

Evonik Industries AG

HOLDING COMPANY ACCOUNTS

P&L (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		1,019	1,235	1,291	1,344	1,071
Corporate tax received from OpCo		504	527	549	569	588
Transaction costs amortization		(25)	(25)	(12)	-	-
Interests on acquisition debt		(205)	(190)	(175)	(161)	(147)
of which tranche A (Cash)		*(134)*	*(115)*	*(96)*	*(77)*	*(58)*
of which tranche B (Cash)		*(31)*	*(31)*	*(31)*	*(31)*	*(31)*
of which Mezzanine (PIK)		*(40)*	*(44)*	*(48)*	*(53)*	*(58)*
Income before tax		**1,294**	**1,548**	**1,653**	**1,753**	**1,513**
(Tax paid)/Tax Credit		(453)	(483)	(513)	(542)	(561)
Net Income		**841**	**1,065**	**1,140**	**1,211**	**952**

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	12,216	12,216	12,216	12,216	12,216	12,216
Capitalized transaction costs	61	37	12	-	-	-
Cash & cash equivalents	-	0	228	522	880	985
Total Assets	**12,278**	**12,253**	**12,456**	**12,739**	**13,097**	**13,201**
Equity	4,357	5,198	6,262	7,402	8,613	9,564
Senior debt tranche A	6,337	5,432	4,526	3,621	2,716	1,811
Senior debt tranche B	1,188	1,188	1,188	1,188	1,188	1,188
Mezzanine debt	396	436	479	527	580	638
Total Equity & Liabilities	**12,278**	**12,253**	**12,456**	**12,739**	**13,097**	**13,201**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			1,019	1,235	1,291	1,344	1,071
Corporate tax received from OpCo			504	527	549	569	588
(Tax paid)/Tax Credit			(453)	(483)	(513)	(542)	(561)
Cash financial expense			(166)	(146)	(127)	(108)	(89)
Debt repayment			(905)	(905)	(905)	(905)	(905)
Available Cash			**0**	**228**	**295**	**358**	**104**

VALUATION (€m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	4.8x
EBITDA 2020	2,982
Enterprise value	**14,441**
HoldCo Net debt	2,652
OpCo Net debt	876
Exit costs	72
Equity value	**10,840**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**4,357**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	6,337	52%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	1,188	10%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	396	3%
Total Acquisition Debt				**7,921**	**65%**
Invested Equity				**4,357**	**35%**
Total Sources				**12,278**	**100%**

Uses		
Purchase of 466m shares @ € 26.2/share	12,216	
Transaction Costs	61	
Total Uses	**12,278**	

Ingenico Group SA

SUMMARY TABLE (€m)

Market Valuation		
Net Debt 2015	4%	252
Market capitalization	96%	5,491
Number of shares (m)		*61*
Enterprise Value	**100%**	**5,744**
EBITDA 2015		487
Implied EV/EBITDA 2015		**11.8x**
Market Capitalization		5,491
Share Price (as of 14-Mar-16)		**€ 90.5**

DCF Valuation		
WACC		7.4%
Perpetual Growth		2.1%
Sum of Disc FCF (16-25)	39%	2,973
Terminal Value	61%	4,594
Enterprise Value	**100%**	**7,567**
Net Debt 2015		252
Equity Value		7,315
Implied Share Price		**€ 120.5**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	63%	3,194
Acquisition Debt	37%	1,869
Total Sources	**100%**	**5,064**
Purchase of shares		5,038
Transaction costs		25
Total Uses		**5,064**
Equity Value		5,038
Implied Share Price		**€ 83**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (€m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	463	504	545	583	618	649	678	704	726	746
NOPAT	310	338	365	391	414	435	454	471	487	500
Tax rate (%)	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*
+ D&A	73	79	85	91	97	102	106	110	114	117
- Capex	(73)	(80)	(86)	(92)	(98)	(103)	(107)	(111)	(115)	(118)
- Δ in Working Capital	102	20	19	18	17	15	14	12	11	9
Unlevered Free Cash Flow	**411**	**357**	**383**	**408**	**430**	**448**	**467**	**483**	**497**	**508**
Discount factor	93%	87%	81%	75%	70%	65%	61%	57%	53%	49%
Present Value of FCF	**383**	**310**	**310**	**307**	**301**	**293**	**284**	**274**	**262**	**250**

WACC CALCULATIONS

Risk free rate (Euro generic 10yr bond)	1.0%
Market Risk Premium (Damodaran W. Europe)	7.5%
Re-levered beta	0.87
Cost of Equity	**7.5%**
Pre-tax Cost of Debt	5.0%
Tax rate	33.0%
Cost of Debt	**3.3%**
WACC	**7.4%**
TGR	2.1%

VALUATION (€m)

Sum of discounted FCF (2016-25)	39%	2,973
Terminal Value	61%	4,594
Enterprise Value	**100%**	**7,567**
Net Debt 2015		252
Minorities		-
Equity Value		**7,315**
Number of shares (m)		*61*
Implied Share Price		**€ 120.5**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	1,607	2,197	2,417	2,635	2,845	3,044	3,227
growth (%)		*37%*	*10%*	*9%*	*8%*	*7%*	*6%*
EBITDA	352	487	535	584	630	674	715
margin (%)	*22%*	*22%*	*22%*	*22%*	*22%*	*22%*	*22%*
D&A	(79)	(106)	(73)	(79)	(85)	(91)	(97)
D&A/Sales (%)	*5%*	*5%*	*3%*	*3%*	*3%*	*3%*	*3%*
EBIT	273	381	463	504	545	583	618
(Net interests)	(20)	(19)	(49)	(47)	(47)	(46)	(46)
Cost of net debt	*0%*	*2%*	*19%*	*43%*	*74%*	*268%*	*-177%*
Profit before tax	254	362	414	457	498	537	572
(Corporate tax)	(81)	(125)	(137)	(151)	(164)	(177)	(189)
Corporate tax rate	*32%*	*34%*	*33%*	*33%*	*33%*	*33%*	*33%*
Net income	**173**	**237**	**277**	**306**	**334**	**360**	**383**

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	2,028	2,019	2,019	2,020	2,021	2,022	2,023
Working Capital	(206)	(117)	(219)	(239)	(258)	(276)	(293)
Other Current Assets	364	307	307	307	307	307	307
Capital Employed	**2,186**	**2,208**	**2,107**	**2,088**	**2,070**	**2,052**	**2,037**
Shareholder's Equity	1,076	1,511	1,551	1,580	1,607	1,633	1,657
Net Financial Debt	764	252	111	63	17	(26)	(65)
Other Liabilities	346	445	445	445	445	445	445
Invested Capital	**2,186**	**2,208**	**2,107**	**2,088**	**2,070**	**2,052**	**2,037**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			535	584	630	674	715
Tax Expense			(137)	(151)	(164)	(177)	(189)
Capital Expenditure			(73)	(80)	(86)	(92)	(98)
-Δ in Working Capital			102	20	19	18	17
Net Interests			(49)	(47)	(47)	(46)	(46)
Cash flow before dividends			**379**	**325**	**352**	**377**	**399**
Dividends paid to HoldCo			(237)	(277)	(306)	(334)	(360)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**141**	**48**	**46**	**43**	**39**

Ingenico Group SA

HOLDING COMPANY ACCOUNTS

P&L (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		237	277	306	334	360
Corporate tax received from OpCo		137	151	164	177	189
Transaction costs amortization		(10)	(10)	(5)	-	-
Interests on acquisition debt		(48)	(45)	(41)	(38)	(35)
of which tranche A (Cash)		*(32)*	*(27)*	*(23)*	*(18)*	*(14)*
of which tranche B (Cash)		*(7)*	*(7)*	*(7)*	*(7)*	*(7)*
of which Mezzanine (PIK)		*(9)*	*(10)*	*(11)*	*(12)*	*(14)*
Income before tax		**315**	**373**	**424**	**473**	**514**
(Tax paid)/Tax Credit		(121)	(137)	(154)	(170)	(183)
Net Income		**194**	**236**	**270**	**303**	**330**

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	5,038	5,038	5,038	5,038	5,038	5,038
Capitalized transaction costs	25	15	5	-	-	-
Cash & cash equivalents	-	0	43	116	217	348
Total Assets	**5,064**	**5,053**	**5,086**	**5,154**	**5,256**	**5,386**
Equity	3,194	3,388	3,625	3,895	4,198	4,528
Senior debt tranche A	1,495	1,282	1,068	855	641	427
Senior debt tranche B	280	280	280	280	280	280
Mezzanine debt	93	103	113	124	137	151
Total Equity & Liabilities	**5,064**	**5,053**	**5,086**	**5,154**	**5,256**	**5,386**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			237	277	306	334	360
Corporate tax received from OpCo			137	151	164	177	189
(Tax paid)/Tax Credit			(121)	(137)	(154)	(170)	(183)
Cash financial expense			(39)	(35)	(30)	(25)	(21)
Debt repayment			(214)	(214)	(214)	(214)	(214)
Available Cash			**0**	**43**	**73**	**102**	**131**

VALUATION (€m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	11.8x
EBITDA 2020	715
Enterprise value	**8,436**
HoldCo Net debt	510
OpCo Net debt	(65)
Exit costs	42
Equity value	**7,948**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**3,194**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	1,495	30%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	280	6%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	93	2%
Total Acquisition Debt				**1,869**	**37%**
Invested Equity				**3,194**	**63%**
Total Sources				**5,064**	**100%**

Uses		
Purchase of 60.7m shares @ € 83/share	5,038	
Transaction Costs	25	
Total Uses	**5,064**	

bpost SA

SUMMARY TABLE (€m)

Market Valuation		
Net Debt 2015	(13)%	(550)
Market capitalization	113%	4,881
Number of shares (m)		*200*
Enterprise Value	**100%**	**4,331**
EBITDA 2015		555
Implied EV/EBITDA 2015		**7.8x**
Market Capitalization		4,881
Share Price (as of 14-Mar-16)		**€ 24.4**

DCF Valuation		
WACC		7.1%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	42%	2,348
Terminal Value	58%	3,257
Enterprise Value	**100%**	**5,605**
Net Debt 2015		(550)
Equity Value		6,155
Implied Share Price		**€ 30.8**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	42%	1,719
Acquisition Debt	58%	2,349
Total Sources	**100%**	**4,068**
Purchase of shares		4,048
Transaction costs		20
Total Uses		**4,068**
Equity Value		4,048
Implied Share Price		**€ 20.2**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (€m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	477	484	491	499	506	514	522	529	537	545
NOPAT	313	318	323	328	333	338	343	348	353	358
Tax rate (%)	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*
+ D&A	86	88	89	90	92	93	95	96	97	99
- Capex	(87)	(88)	(89)	(91)	(92)	(93)	(95)	(96)	(98)	(99)
- Δ in Working Capital	(19)	6	6	6	6	6	6	7	7	7
Unlevered Free Cash Flow	**295**	**324**	**329**	**334**	**339**	**344**	**349**	**354**	**359**	**365**
Discount factor	93%	87%	81%	76%	71%	66%	62%	58%	54%	50%
Present Value of FCF	**275**	**283**	**268**	**254**	**241**	**228**	**216**	**205**	**194**	**184**

WACC CALCULATIONS

Risk free rate (Belgium sovereing CDS spread)	0.7%
Market Risk Premium (Damodaran Belgium)	6.7%
Re-levered beta	0.89
Cost of Equity	**6.7%**
Pre-tax Cost of Debt	4.3%
Tax rate	34.3%
Cost of Debt	**2.8%**
WACC	**7.1%**
TGR	1.5%

VALUATION (€m)

Sum of discounted FCF (2016-25)	42%	2,348
Terminal Value	58%	3,257
Enterprise Value	**100%**	**5,605**
Net Debt 2015		(550)
Minorities		-
Equity Value		**6,155**
Number of shares (m)		*200*
Implied Share Price		**€ 30.8**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	2,465	2,434	2,470	2,507	2,545	2,583	2,622
growth (%)		*-1%*	*2%*	*2%*	*2%*	*2%*	*2%*
EBITDA	572	555	564	572	581	589	598
margin (%)	*23%*	*23%*	*23%*	*23%*	*23%*	*23%*	*23%*
D&A	(92)	(89)	(86)	(88)	(89)	(90)	(92)
D&A/Sales (%)	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*
EBIT	480	466	477	484	491	499	506
(Net interests)	(37)	(6)	2	2	2	2	2
Cost of net debt	*0%*	*-1%*	*0%*	*0%*	*0%*	*0%*	*0%*
Profit before tax	443	461	479	486	493	501	508
(Corporate tax)	(159)	(161)	(164)	(167)	(169)	(172)	(174)
Corporate tax rate	*36%*	*35%*	*34%*	*34%*	*34%*	*34%*	*34%*
Net income	**284**	**299**	**314**	**319**	**324**	**329**	**334**

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	1,144	1,069	1,069	1,070	1,070	1,070	1,070
Working Capital	(372)	(416)	(397)	(403)	(409)	(416)	(422)
Other Current Assets	5	5	5	5	5	5	5
Capital Employed	**777**	**658**	**677**	**671**	**665**	**659**	**653**
Shareholder's Equity	681	695	710	715	720	725	730
Net Financial Debt	(486)	(550)	(546)	(557)	(567)	(578)	(589)
Other Liabilities	582	513	513	513	513	513	513
Invested Capital	**777**	**658**	**677**	**671**	**665**	**659**	**653**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			564	572	581	589	598
Tax Expense			(164)	(167)	(169)	(172)	(174)
Capital Expenditure			(87)	(88)	(89)	(91)	(92)
-Δ in Working Capital			(19)	6	6	6	6
Net Interests			2	2	2	2	2
Cash flow before dividends			**296**	**325**	**330**	**335**	**340**
Dividends paid to HoldCo			(299)	(314)	(319)	(324)	(329)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**(3)**	**10**	**11**	**11**	**11**

HOLDING COMPANY ACCOUNTS

P&L (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		299	314	319	324	329
Corporate tax received from OpCo		164	167	169	172	174
Transaction costs amortization		(8)	(8)	(4)	-	-
Interests on acquisition debt		(61)	(56)	(52)	(48)	(44)
of which tranche A (Cash)		*(40)*	*(34)*	*(28)*	*(23)*	*(17)*
of which tranche B (Cash)		*(9)*	*(9)*	*(9)*	*(9)*	*(9)*
of which Mezzanine (PIK)		*(12)*	*(13)*	*(14)*	*(16)*	*(17)*
Income before tax		**394**	**417**	**432**	**448**	**460**
(Tax paid)/Tax Credit		(146)	(150)	(155)	(161)	(165)
Net Income		**249**	**267**	**277**	**287**	**295**

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	4,048	4,048	4,048	4,048	4,048	4,048
Capitalized transaction costs	20	12	4	-	-	-
Cash & cash equivalents	-	0	19	46	80	124
Total Assets	**4,068**	**4,060**	**4,071**	**4,094**	**4,128**	**4,171**
Equity	1,719	1,967	2,234	2,511	2,798	3,093
Senior debt tranche A	1,880	1,611	1,343	1,074	806	537
Senior debt tranche B	352	352	352	352	352	352
Mezzanine debt	117	129	142	156	172	189
Total Equity & Liabilities	**4,068**	**4,060**	**4,071**	**4,094**	**4,128**	**4,171**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			299	314	319	324	329
Corporate tax received from OpCo			164	167	169	172	174
(Tax paid)/Tax Credit			(146)	(150)	(155)	(161)	(165)
Cash financial expense			(49)	(43)	(38)	(32)	(26)
Debt repayment			(269)	(269)	(269)	(269)	(269)
Available Cash			**0**	**19**	**27**	**34**	**43**

VALUATION (€m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	7.8x
EBITDA 2020	598
Enterprise value	**4,666**
HoldCo Net debt	955
OpCo Net debt	(589)
Exit costs	23
Equity value	**4,277**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**1,719**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	1,880	46%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	352	9%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	117	3%
Total Acquisition Debt				**2,349**	**58%**
Invested Equity				**1,719**	**42%**
Total Sources				**4,068**	**100%**

Uses		
Purchase of 200m shares @ € 20.2/share	4,048	
Transaction Costs	20	
Total Uses	**4,068**	

HUGO BOSS AG

SUMMARY TABLE (€m)

Market Valuation		
Net Debt 2015	2%	95
Market capitalization	98%	3,915
Number of shares (m)		*69*
Enterprise Value	**100%**	**4,010**
EBITDA 2015		590
Implied EV/EBITDA 2015		**6.8x**
Market Capitalization		3,915
Share Price (as of 14-Mar-16)		**€ 56.7**

DCF Valuation		
WACC		7.7%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	45%	2,356
Terminal Value	55%	2,922
Enterprise Value	**100%**	**5,278**
Net Debt 2015		95
Equity Value		5,183
Implied Share Price		**€ 75.1**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	48%	1,676
Acquisition Debt	52%	1,823
Total Sources	**100%**	**3,499**
Purchase of shares		3,482
Transaction costs		17
Total Uses		**3,499**
Equity Value		3,482
Implied Share Price		**€ 50.4**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (€m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	470	486	501	513	524	531	539	548	556	564
NOPAT	357	370	381	390	398	404	410	416	422	429
Tax rate (%)	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*
+ D&A	144	149	153	157	160	162	165	167	170	172
- Capex	(175)	(181)	(186)	(191)	(195)	(198)	(201)	(204)	(207)	(210)
- Δ in Working Capital	(21)	(18)	(16)	(13)	(11)	(8)	(9)	(9)	(9)	(9)
Unlevered Free Cash Flow	**305**	**320**	**332**	**343**	**352**	**360**	**366**	**371**	**377**	**383**
Discount factor	93%	86%	80%	74%	69%	64%	60%	55%	51%	48%
Present Value of FCF	**284**	**276**	**266**	**255**	**244**	**231**	**218**	**206**	**194**	**183**

WACC CALCULATIONS

Risk free rate (Euro generic 10yr bond)	1.0%
Market Risk Premium (Damodaran W. Europe)	7.5%
Re-levered beta	0.90
Cost of Equity	**7.8%**
Pre-tax Cost of Debt	3.8%
Tax rate	24.0%
Cost of Debt	**2.9%**
WACC	**7.7%**
TGR	1.5%

VALUATION (€m)

Sum of discounted FCF (2016-25)	45%	2,356
Terminal Value	55%	2,922
Enterprise Value	**100%**	**5,278**
Net Debt 2015		95
Minorities		-
Equity Value		**5,183**
Number of shares (m)		*69*
Implied Share Price		**€ 75.1**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	2,572	2,809	2,921	3,023	3,114	3,192	3,256
growth (%)		*9%*	*4%*	*4%*	*3%*	*3%*	*2%*
EBITDA	571	590	613	635	654	670	684
margin (%)	*22%*	*21%*	*21%*	*21%*	*21%*	*21%*	*21%*
D&A	(123)	(142)	(144)	(149)	(153)	(157)	(160)
D&A/Sales (%)	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*
EBIT	449	448	470	486	501	513	524
(Net interests)	(12)	(28)	(6)	(5)	(5)	(5)	(5)
Cost of net debt	*0%*	*64%*	*6%*	*17%*	*20%*	*24%*	*30%*
Profit before tax	437	420	464	481	496	508	519
(Corporate tax)	(103)	(101)	(111)	(115)	(119)	(122)	(124)
Corporate tax rate	*23%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*
Net income	**334**	**319**	**353**	**366**	**377**	**386**	**394**

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	660	765	796	828	861	895	929
Working Capital	443	481	502	519	535	548	559
Other Current Assets	115	155	155	155	155	155	155
Capital Employed	**1,218**	**1,401**	**1,453**	**1,502**	**1,551**	**1,598**	**1,644**
Shareholder's Equity	844	956	1,072	1,127	1,180	1,231	1,280
Net Financial Debt	43	95	30	25	21	17	14
Other Liabilities	331	350	350	350	350	350	350
Invested Capital	**1,218**	**1,401**	**1,453**	**1,502**	**1,551**	**1,598**	**1,644**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			613	635	654	670	684
Tax Expense			(111)	(115)	(119)	(122)	(124)
Capital Expenditure			(175)	(181)	(186)	(191)	(195)
-Δ in Working Capital			(21)	(18)	(16)	(13)	(11)
Net Interests			(6)	(5)	(5)	(5)	(5)
Cash flow before dividends			**301**	**316**	**328**	**339**	**349**
Dividends paid to HoldCo			(236)	(311)	(324)	(335)	(345)
Payout ratio (%)			*74%*	*88%*	*88%*	*89%*	*89%*
Available Cash			**65**	**5**	**5**	**4**	**3**

HOLDING COMPANY ACCOUNTS

P&L (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		236	311	324	335	345
Corporate tax received from OpCo		111	115	119	122	124
Transaction costs amortization		(7)	(7)	(3)	-	-
Interests on acquisition debt		(47)	(44)	(40)	(37)	(34)
of which tranche A (Cash)		*(31)*	*(27)*	*(22)*	*(18)*	*(13)*
of which tranche B (Cash)		*(7)*	*(7)*	*(7)*	*(7)*	*(7)*
of which Mezzanine (PIK)		*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
Income before tax		**293**	**376**	**399**	**420**	**436**
(Tax paid)/Tax Credit		(101)	(107)	(112)	(117)	(120)
Net Income		**192**	**269**	**286**	**303**	**316**

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	3,482	3,482	3,482	3,482	3,482	3,482
Capitalized transaction costs	17	10	3	-	-	-
Cash & cash equivalents	-	0	77	170	277	397
Total Assets	**3,499**	**3,492**	**3,563**	**3,652**	**3,758**	**3,879**
Equity	1,676	1,868	2,137	2,423	2,726	3,042
Senior debt tranche A	1,458	1,250	1,042	833	625	417
Senior debt tranche B	273	273	273	273	273	273
Mezzanine debt	91	100	110	121	133	147
Total Equity & Liabilities	**3,499**	**3,492**	**3,563**	**3,652**	**3,758**	**3,879**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			236	311	324	335	345
Corporate tax received from OpCo			111	115	119	122	124
(Tax paid)/Tax Credit			(101)	(107)	(112)	(117)	(120)
Cash financial expense			(38)	(34)	(29)	(25)	(20)
Debt repayment			(208)	(208)	(208)	(208)	(208)
Available Cash			**0**	**77**	**93**	**107**	**121**

VALUATION (€m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	6.8x
EBITDA 2020	684
Enterprise value	**4,648**
HoldCo Net debt	440
OpCo Net debt	14
Exit costs	23
Equity value	**4,171**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**1,676**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	1,458	42%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	273	8%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	91	3%
Total Acquisition Debt				**1,823**	**52%**
Invested Equity				**1,676**	**48%**
Total Sources				**3,499**	**100%**

Uses		
Purchase of 69m shares @ € 50.4/share	3,482	
Transaction Costs	17	
Total Uses	**3,499**	

SPIE SA

SUMMARY TABLE (€m)

Market Valuation		
Net Debt 2015	26%	914
Market capitalization	74%	2,612
Number of shares (m)		*154*
Enterprise Value	**100%**	**3,525**
EBITDA 2015		316
Implied EV/EBITDA 2015		**11.1x**
Market Capitalization		2,612
Share Price (as of 14-Mar-16)		**€ 17**

DCF Valuation		
WACC		6.6%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	37%	1,443
Terminal Value	63%	2,407
Enterprise Value	**100%**	**3,850**
Net Debt 2015		914
Equity Value		2,936
Implied Share Price		**€ 19.1**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	80%	1,401
Acquisition Debt	20%	341
Total Sources	**100%**	**1,742**
Purchase of shares		1,733
Transaction costs		9
Total Uses		**1,742**
Equity Value		1,733
Implied Share Price		**€ 11.2**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (€m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	281	294	306	316	326	334	342	349	356	362
NOPAT	186	194	202	209	215	220	226	230	235	239
Tax rate (%)	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*
+ D&A	51	53	55	57	59	60	62	63	64	65
- Capex	(36)	(38)	(39)	(41)	(42)	(43)	(44)	(45)	(46)	(47)
- Δ in Working Capital	(68)	(28)	(26)	(24)	(21)	(18)	(17)	(16)	(15)	(13)
Unlevered Free Cash Flow	**132**	**181**	**191**	**201**	**211**	**219**	**226**	**232**	**238**	**244**
Discount factor	94%	88%	82%	77%	73%	68%	64%	60%	56%	53%
Present Value of FCF	**124**	**159**	**158**	**156**	**153**	**149**	**144**	**139**	**134**	**128**

WACC CALCULATIONS

Risk free rate (France 10yr goverment bond)	0.6%
Market Risk Premium (Damodaran France)	6.5%
Re-levered beta	0.98
Cost of Equity	**7.0%**
Pre-tax Cost of Debt	8.5%
Tax rate	34.0%
Cost of Debt	**5.6%**
WACC	**6.6%**
TGR	1.5%

VALUATION (€m)

Sum of discounted FCF (2016-25)	37%	1,443
Terminal Value	63%	2,407
Enterprise Value	**100%**	**3,850**
Net Debt 2015		914
Minorities		-
Equity Value		**2,936**
Number of shares (m)		*154*
Implied Share Price		**€ 19.1**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	5,368	5,432	5,703	5,960	6,199	6,415	6,608
growth (%)		*1%*	*5%*	*5%*	*4%*	*4%*	*3%*
EBITDA	336	316	332	347	361	373	385
margin (%)	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*
D&A	(84)	(48)	(51)	(53)	(55)	(57)	(59)
D&A/Sales (%)	*2%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
EBIT	251	268	281	294	306	316	326
(Net interests)	(226)	(168)	(125)	(125)	(125)	(125)	(125)
Cost of net debt	*0%*	*9%*	*14%*	*14%*	*14%*	*14%*	*14%*
Profit before tax	26	100	156	169	181	191	201
(Corporate tax)	(39)	(57)	(53)	(57)	(61)	(65)	(68)
Corporate tax rate	*154%*	*57%*	*34%*	*34%*	*34%*	*34%*	*34%*
Net income	**(14)**	**43**	**103**	**111**	**119**	**126**	**133**

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	3,339	3,352	3,338	3,322	3,307	3,290	3,274
Working Capital	628	559	627	655	681	705	726
Other Current Assets	334	275	275	275	275	275	275
Capital Employed	**4,302**	**4,186**	**4,240**	**4,253**	**4,263**	**4,271**	**4,275**
Shareholder's Equity	363	1,317	1,377	1,386	1,393	1,400	1,407
Net Financial Debt	1,895	914	907	912	914	915	913
Other Liabilities	2,043	1,956	1,956	1,956	1,956	1,956	1,956
Invested Capital	**4,302**	**4,186**	**4,240**	**4,253**	**4,263**	**4,271**	**4,275**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			332	347	361	373	385
Tax Expense			(53)	(57)	(61)	(65)	(68)
Capital Expenditure			(36)	(38)	(39)	(41)	(42)
-Δ in Working Capital			(68)	(28)	(26)	(24)	(21)
Net Interests			(125)	(125)	(125)	(125)	(125)
Cash flow before dividends			**49**	**98**	**109**	**119**	**128**
Dividends paid to HoldCo			(43)	(103)	(111)	(119)	(126)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**7**	**(5)**	**(3)**	**(1)**	**2**

HOLDING COMPANY ACCOUNTS

P&L (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		43	103	111	119	126
Corporate tax received from OpCo		53	57	61	65	68
Transaction costs amortization		(3)	(3)	(2)	-	-
Interests on acquisition debt		(9)	(8)	(8)	(7)	(6)
of which tranche A (Cash)		*(6)*	*(5)*	*(4)*	*(3)*	*(2)*
of which tranche B (Cash)		*(1)*	*(1)*	*(1)*	*(1)*	*(1)*
of which Mezzanine (PIK)		*(2)*	*(2)*	*(2)*	*(2)*	*(2)*
Income before tax		**83**	**149**	**164**	**177**	**188**
(Tax paid)/Tax Credit		(50)	(55)	(60)	(65)	(68)
Net Income		**34**	**94**	**103**	**113**	**120**

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	1,733	1,733	1,733	1,733	1,733	1,733
Capitalized transaction costs	9	5	2	-	-	-
Cash & cash equivalents	-	0	60	128	204	288
Total Assets	**1,742**	**1,738**	**1,795**	**1,862**	**1,937**	**2,021**
Equity	1,401	1,434	1,528	1,631	1,744	1,864
Senior debt tranche A	273	234	195	156	117	78
Senior debt tranche B	51	51	51	51	51	51
Mezzanine debt	17	19	21	23	25	27
Total Equity & Liabilities	**1,742**	**1,738**	**1,795**	**1,862**	**1,937**	**2,021**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			43	103	111	119	126
Corporate tax received from OpCo			53	57	61	65	68
(Tax paid)/Tax Credit			(50)	(55)	(60)	(65)	(68)
Cash financial expense			(7)	(6)	(5)	(5)	(4)
Debt repayment			(39)	(39)	(39)	(39)	(39)
Available Cash			**0**	**60**	**68**	**76**	**83**

VALUATION (€m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	11.1x
EBITDA 2020	385
Enterprise value	**4,289**
HoldCo Net debt	(131)
OpCo Net debt	913
Exit costs	21
Equity value	**3,485**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**1,401**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	273	16%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	51	3%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	17	1%
Total Acquisition Debt				**341**	**20%**
Invested Equity				**1,401**	**80%**
Total Sources				**1,742**	**100%**

Uses		
Purchase of 154.1m shares @ € 11.2/share	1,733	
Transaction Costs	9	
Total Uses	**1,742**	

Refresco Gerber NV

SUMMARY TABLE (€m)

Market Valuation		
Net Debt 2015	27%	458
Market capitalization	73%	1,217
Number of shares (m)		*81*
Enterprise Value	**100%**	**1,674**
EBITDA 2015		195
Implied EV/EBITDA 2015		**8.6x**
Market Capitalization		1,217
Share Price (as of 14-Mar-16)		**€ 15**

DCF Valuation		
WACC		6.6%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	39%	633
Terminal Value	61%	985
Enterprise Value	**100%**	**1,618**
Net Debt 2015		458
Equity Value		1,161
Implied Share Price		**€ 14.3**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	64%	518
Acquisition Debt	36%	294
Total Sources	**100%**	**812**
Purchase of shares		808
Transaction costs		4
Total Uses		**812**
Equity Value		808
Implied Share Price		**€ 10**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (€m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	125	127	129	131	133	135	137	139	141	143
NOPAT	86	88	89	90	92	93	95	96	97	99
Tax rate (%)	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*
+ D&A	73	74	75	76	77	78	79	81	82	83
- Capex	(74)	(75)	(76)	(77)	(78)	(80)	(81)	(82)	(83)	(84)
- Δ in Working Capital	(10)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Unlevered Free Cash Flow	**75**	**86**	**87**	**88**	**90**	**91**	**92**	**94**	**95**	**97**
Discount factor	94%	88%	83%	77%	73%	68%	64%	60%	56%	53%
Present Value of FCF	**71**	**75**	**72**	**68**	**65**	**62**	**59**	**56**	**54**	**51**

WACC CALCULATIONS

Risk free rate (Euro generic 10yr bond)	1.0%
Market Risk Premium (Damodaran W. Europe)	7.5%
Re-levered beta	0.79
Cost of Equity	**6.9%**
Pre-tax Cost of Debt	8.3%
Tax rate	31.0%
Cost of Debt	**5.7%**
WACC	**6.6%**
TGR	1.5%

VALUATION (€m)

Sum of discounted FCF (2016-25)	39%	633
Terminal Value	61%	985
Enterprise Value	**100%**	**1,618**
Net Debt 2015		458
Minorities		-
Equity Value		**1,161**
Number of shares (m)		*81*
Implied Share Price		**€ 14.3**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	2,037	2,016	2,047	2,077	2,109	2,140	2,172
growth (%)		*-1%*	*2%*	*2%*	*2%*	*2%*	*2%*
EBITDA	195	195	198	201	204	207	210
margin (%)	*10%*	*10%*	*10%*	*10%*	*10%*	*10%*	*10%*
D&A	(88)	(85)	(73)	(74)	(75)	(76)	(77)
D&A/Sales (%)	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*
EBIT	107	111	125	127	129	131	133
(Net interests)	(49)	(50)	(45)	(45)	(45)	(45)	(45)
Cost of net debt	*0%*	*8%*	*10%*	*10%*	*10%*	*10%*	*10%*
Profit before tax	57	61	80	82	84	86	88
(Corporate tax)	(21)	(19)	(25)	(25)	(26)	(27)	(27)
Corporate tax rate	*36%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*
Net income	**37**	**42**	**55**	**57**	**58**	**59**	**61**

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	962	984	985	986	988	989	990
Working Capital	61	42	52	53	54	54	55
Other Current Assets	13	6	6	6	6	6	6
Capital Employed	**1,036**	**1,032**	**1,043**	**1,045**	**1,047**	**1,049**	**1,051**
Shareholder's Equity	361	514	532	535	539	542	546
Net Financial Debt	593	458	451	449	448	446	445
Other Liabilities	82	60	60	60	60	60	60
Invested Capital	**1,036**	**1,032**	**1,043**	**1,045**	**1,047**	**1,049**	**1,051**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			198	201	204	207	210
Tax Expense			(25)	(25)	(26)	(27)	(27)
Capital Expenditure			(74)	(75)	(76)	(77)	(78)
-Δ in Working Capital			(10)	(1)	(1)	(1)	(1)
Net Interests			(45)	(45)	(45)	(45)	(45)
Cash flow before dividends			**44**	**55**	**56**	**57**	**59**
Dividends paid to HoldCo			(38)	(53)	(54)	(56)	(57)
Payout ratio (%)			*90%*	*96%*	*96%*	*96%*	*96%*
Available Cash			**7**	**2**	**2**	**2**	**2**

Refresco Gerber NV

HOLDING COMPANY ACCOUNTS

P&L (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		38	53	54	56	57
Corporate tax received from OpCo		25	25	26	27	27
Transaction costs amortization		(2)	(2)	(1)	-	-
Interests on acquisition debt		(8)	(7)	(7)	(6)	(5)
of which tranche A (Cash)		*(5)*	*(4)*	*(4)*	*(3)*	*(2)*
of which tranche B (Cash)		*(1)*	*(1)*	*(1)*	*(1)*	*(1)*
of which Mezzanine (PIK)		*(1)*	*(2)*	*(2)*	*(2)*	*(2)*
Income before tax		**53**	**70**	**73**	**76**	**79**
(Tax paid)/Tax Credit		(23)	(24)	(25)	(26)	(26)
Net Income		**31**	**46**	**48**	**51**	**52**

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	808	808	808	808	808	808
Capitalized transaction costs	4	2	1	-	-	-
Cash & cash equivalents	-	0	16	33	52	73
Total Assets	**812**	**810**	**825**	**841**	**860**	**881**
Equity	518	548	594	643	694	746
Senior debt tranche A	235	202	168	135	101	67
Senior debt tranche B	44	44	44	44	44	44
Mezzanine debt	15	16	18	20	22	24
Total Equity & Liabilities	**812**	**810**	**825**	**841**	**860**	**881**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			38	53	54	56	57
Corporate tax received from OpCo			25	25	26	27	27
(Tax paid)/Tax Credit			(23)	(24)	(25)	(26)	(26)
Cash financial expense			(6)	(5)	(5)	(4)	(3)
Debt repayment			(34)	(34)	(34)	(34)	(34)
Available Cash			**0**	**16**	**17**	**19**	**21**

VALUATION (€m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	8.6x
EBITDA 2020	210
Enterprise value	**1,803**
HoldCo Net debt	62
OpCo Net debt	445
Exit costs	9
Equity value	**1,288**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**518**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	235	29%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	44	5%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	15	2%
Total Acquisition Debt				**294**	**36%**
Invested Equity				**518**	**64%**
Total Sources				**812**	**100%**

Uses		
Purchase of 81.2m shares @ € 10/share	808	
Transaction Costs	4	
Total Uses	**812**	

Applus Services SA

SUMMARY TABLE (€m)

Market Valuation		
Net Debt 2015	41%	681
Market capitalization	59%	995
Number of shares (m)		*130*
Enterprise Value	**100%**	**1,676**
EBITDA 2015		198
Implied EV/EBITDA 2015		**8.5x**
Market Capitalization		995
Share Price (as of 14-Mar-16)		**€ 7.7**

DCF Valuation		
WACC		7.5%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	43%	938
Terminal Value	57%	1,222
Enterprise Value	**100%**	**2,160**
Net Debt 2015		681
Equity Value		1,479
Implied Share Price		**€ 11.4**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	61%	562
Acquisition Debt	39%	357
Total Sources	**100%**	**919**
Purchase of shares		915
Transaction costs		5
Total Uses		**919**
Equity Value		915
Implied Share Price		**€ 7**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (€m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	107	111	115	118	121	123	126	128	130	132
NOPAT	81	83	86	89	91	92	94	96	98	99
Tax rate (%)	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*
+ D&A	98	102	105	108	111	113	115	117	119	121
- Capex	(52)	(54)	(56)	(58)	(59)	(60)	(61)	(62)	(64)	(65)
- Δ in Working Capital	(11)	(4)	(4)	(3)	(3)	(2)	(2)	(2)	(2)	(2)
Unlevered Free Cash Flow	**115**	**127**	**131**	**135**	**139**	**142**	**145**	**148**	**151**	**153**
Discount factor	93%	87%	81%	75%	70%	65%	60%	56%	52%	49%
Present Value of FCF	**107**	**110**	**106**	**102**	**97**	**92**	**88**	**83**	**79**	**75**

WACC CALCULATIONS

Risk free rate (Spain 10-Yrs government bond)	1.4%
Market Risk Premium (Damodaran Spain)	7.7%
Re-levered beta	1.03
Cost of Equity	**9.3%**
Pre-tax Cost of Debt	4.5%
Tax rate	25.0%
Cost of Debt	**3.4%**
WACC	**7.5%**
TGR	1.5%

VALUATION (€m)

Sum of discounted FCF (2016-25)	43%	938
Terminal Value	57%	1,222
Enterprise Value	**100%**	**2,160**
Net Debt 2015		681
Minorities		-
Equity Value		**1,479**
Number of shares (m)		*130*
Implied Share Price		**€ 11.4**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	1,619	1,701	1,770	1,833	1,892	1,945	1,992
growth (%)		*5%*	*4%*	*4%*	*3%*	*3%*	*2%*
EBITDA	185	198	206	213	220	226	231
margin (%)	*11%*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*
D&A	(109)	(107)	(98)	(102)	(105)	(108)	(111)
D&A/Sales (%)	*7%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*
EBIT	76	90	107	111	115	118	121
(Net interests)	(37)	(25)	(36)	(35)	(35)	(34)	(33)
Cost of net debt	*0%*	*4%*	*5%*	*6%*	*6%*	*6%*	*7%*
Profit before tax	39	66	71	76	80	84	87
(Corporate tax)	(11)	(20)	(18)	(19)	(20)	(21)	(22)
Corporate tax rate	*27%*	*30%*	*25%*	*25%*	*25%*	*25%*	*25%*
Net income	**29**	**46**	**54**	**57**	**60**	**63**	**66**

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	1,382	1,418	1,372	1,325	1,276	1,226	1,174
Working Capital	108	99	110	114	118	121	124
Other Current Assets	29	30	30	30	30	30	30
Capital Employed	**1,519**	**1,547**	**1,512**	**1,469**	**1,424**	**1,377**	**1,328**
Shareholder's Equity	634	651	659	662	665	668	671
Net Financial Debt	669	681	640	593	545	495	444
Other Liabilities	217	214	214	214	214	214	214
Invested Capital	**1,519**	**1,547**	**1,512**	**1,469**	**1,424**	**1,377**	**1,328**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			206	213	220	226	231
Tax Expense			(18)	(19)	(20)	(21)	(22)
Capital Expenditure			(52)	(54)	(56)	(58)	(59)
-Δ in Working Capital			(11)	(4)	(4)	(3)	(3)
Net Interests			(36)	(35)	(35)	(34)	(33)
Cash flow before dividends			**88**	**100**	**105**	**110**	**114**
Dividends paid to HoldCo			(46)	(54)	(57)	(60)	(63)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**42**	**47**	**48**	**50**	**51**

HOLDING COMPANY ACCOUNTS

P&L (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		46	54	57	60	63
Corporate tax received from OpCo		18	19	20	21	22
Transaction costs amortization		(2)	(2)	(1)	-	-
Interests on acquisition debt		(9)	(9)	(8)	(7)	(7)
of which tranche A (Cash)		*(6)*	*(5)*	*(4)*	*(3)*	*(3)*
of which tranche B (Cash)		*(1)*	*(1)*	*(1)*	*(1)*	*(1)*
of which Mezzanine (PIK)		*(2)*	*(2)*	*(2)*	*(2)*	*(3)*
Income before tax		**53**	**62**	**68**	**74**	**78**
(Tax paid)/Tax Credit		(16)	(17)	(19)	(20)	(21)
Net Income		**37**	**45**	**50**	**54**	**57**

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	915	915	915	915	915	915
Capitalized transaction costs	5	3	1	-	-	-
Cash & cash equivalents	-	0	8	20	35	54
Total Assets	**919**	**918**	**924**	**935**	**950**	**969**
Equity	562	599	644	694	748	805
Senior debt tranche A	286	245	204	163	123	82
Senior debt tranche B	54	54	54	54	54	54
Mezzanine debt	18	20	22	24	26	29
Total Equity & Liabilities	**919**	**918**	**924**	**935**	**950**	**969**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			46	54	57	60	63
Corporate tax received from OpCo			18	19	20	21	22
(Tax paid)/Tax Credit			(16)	(17)	(19)	(20)	(21)
Cash financial expense			(7)	(7)	(6)	(5)	(4)
Debt repayment			(41)	(41)	(41)	(41)	(41)
Available Cash			**0**	**8**	**12**	**15**	**19**

VALUATION (€m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	8.5x
EBITDA 2020	231
Enterprise value	**1,962**
HoldCo Net debt	110
OpCo Net debt	444
Exit costs	10
Equity value	**1,399**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**562**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	286	31%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	54	6%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	18	2%
Total Acquisition Debt				**357**	**39%**
Invested Equity				**562**	**61%**
Total Sources				**919**	**100%**

Uses		
Purchase of 130m shares @ € 7/share	915	
Transaction Costs	5	
Total Uses	**919**	

BRAAS Monier Building Group SA

SUMMARY TABLE (€m)

Market Valuation		
Net Debt 2015	26%	335
Market capitalization	74%	940
Number of shares (m)		*39*
Enterprise Value	**100%**	**1,275**
EBITDA 2015		211
Implied EV/EBITDA 2015		**6.0x**
Market Capitalization		940
Share Price (as of 14-Mar-16)		**€ 24**

DCF Valuation		
WACC		8.1%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	46%	840
Terminal Value	54%	1,002
Enterprise Value	**100%**	**1,842**
Net Debt 2015		335
Equity Value		1,506
Implied Share Price		**€ 38.5**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	51%	452
Acquisition Debt	49%	431
Total Sources	**100%**	**883**
Purchase of shares		879
Transaction costs		4
Total Uses		**883**
Equity Value		879
Implied Share Price		**€ 22.4**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (€m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	143	150	156	162	167	172	177	181	185	188
NOPAT	98	103	107	111	115	118	122	125	127	129
Tax rate (%)	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*
+ D&A	78	82	86	89	92	95	97	99	102	103
- Capex	(62)	(65)	(67)	(70)	(72)	(74)	(76)	(78)	(80)	(81)
- Δ in Working Capital	(15)	(7)	(7)	(7)	(6)	(6)	(5)	(5)	(4)	(4)
Unlevered Free Cash Flow	**100**	**113**	**118**	**123**	**128**	**133**	**137**	**141**	**145**	**148**
Discount factor	93%	86%	79%	73%	68%	63%	58%	54%	50%	46%
Present Value of FCF	**93**	**97**	**94**	**91**	**87**	**83**	**80**	**76**	**72**	**68**

WACC CALCULATIONS

Risk free rate (Euro generic 10yr bond)	1.0%
Market Risk Premium (Damodaran W. Europe)	7.5%
Re-levered beta	0.93
Cost of Equity	**8.0%**
Pre-tax Cost of Debt	12.4%
Tax rate	31.2%
Cost of Debt	**8.6%**
WACC	**8.1%**
TGR	1.5%

VALUATION (€m)

Sum of discounted FCF (2016-25)	46%	840
Terminal Value	54%	1,002
Enterprise Value	**100%**	**1,842**
Net Debt 2015		335
Minorities		-
Equity Value		**1,506**
Number of shares (m)		*39*
Implied Share Price		**€ 38.5**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	1,211	1,257	1,320	1,380	1,438	1,493	1,544
growth (%)		*4%*	*5%*	*5%*	*4%*	*4%*	*3%*
EBITDA	206	211	221	232	241	251	259
margin (%)	*17%*	*17%*	*17%*	*17%*	*17%*	*17%*	*17%*
D&A	(91)	(87)	(78)	(82)	(86)	(89)	(92)
D&A/Sales (%)	*7%*	*7%*	*6%*	*6%*	*6%*	*6%*	*6%*
EBIT	115	124	143	150	156	162	167
(Net interests)	(58)	(42)	(63)	(63)	(62)	(62)	(62)
Cost of net debt	*0%*	*12%*	*19%*	*19%*	*20%*	*21%*	*22%*
Profit before tax	57	82	80	87	93	99	105
(Corporate tax)	(17)	(27)	(25)	(27)	(29)	(31)	(33)
Corporate tax rate	*30%*	*33%*	*31%*	*31%*	*31%*	*31%*	*31%*
Net income	**40**	**55**	**55**	**60**	**64**	**68**	**72**

Balance Sheet (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	949	982	966	948	930	911	891
Working Capital	156	148	163	170	177	184	190
Other Current Assets	33	35	35	35	35	35	35
Capital Employed	**1,138**	**1,166**	**1,164**	**1,154**	**1,143**	**1,131**	**1,117**
Shareholder's Equity	93	147	147	152	156	160	164
Net Financial Debt	333	335	333	319	303	287	270
Other Liabilities	712	684	684	684	684	684	684
Invested Capital	**1,138**	**1,166**	**1,164**	**1,154**	**1,143**	**1,131**	**1,117**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			221	232	241	251	259
Tax Expense			(25)	(27)	(29)	(31)	(33)
Capital Expenditure			(62)	(65)	(67)	(70)	(72)
-Δ in Working Capital			(15)	(7)	(7)	(7)	(6)
Net Interests			(63)	(63)	(62)	(62)	(62)
Cash flow before dividends			**57**	**70**	**75**	**81**	**86**
Dividends paid to HoldCo			(55)	(55)	(60)	(64)	(68)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**2**	**15**	**16**	**16**	**17**

HOLDING COMPANY ACCOUNTS

P&L (€m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		55	55	60	64	68
Corporate tax received from OpCo		25	27	29	31	33
Transaction costs amortization		(2)	(2)	(1)	-	-
Interests on acquisition debt		(11)	(10)	(10)	(9)	(8)
of which tranche A (Cash)		*(7)*	*(6)*	*(5)*	*(4)*	*(3)*
of which tranche B (Cash)		*(2)*	*(2)*	*(2)*	*(2)*	*(2)*
of which Mezzanine (PIK)		*(2)*	*(2)*	*(3)*	*(3)*	*(3)*
Income before tax		**67**	**70**	**78**	**86**	**93**
(Tax paid)/Tax Credit		(22)	(24)	(27)	(29)	(31)
Net Income		**45**	**46**	**52**	**57**	**62**

Balance Sheet (€m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	879	879	879	879	879	879
Capitalized transaction costs	4	3	1	-	-	-
Cash & cash equivalents	-	0	1	7	18	33
Total Assets	**883**	**881**	**881**	**886**	**896**	**912**
Equity	452	497	543	595	652	714
Senior debt tranche A	345	296	246	197	148	99
Senior debt tranche B	65	65	65	65	65	65
Mezzanine debt	22	24	26	29	32	35
Total Equity & Liabilities	**883**	**881**	**881**	**886**	**896**	**912**

Cash Flow Statement (€m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			55	55	60	64	68
Corporate tax received from OpCo			25	27	29	31	33
(Tax paid)/Tax Credit			(22)	(24)	(27)	(29)	(31)
Cash financial expense			(9)	(8)	(7)	(6)	(5)
Debt repayment			(49)	(49)	(49)	(49)	(49)
Available Cash			**0**	**1**	**6**	**11**	**16**

VALUATION (€m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	6.0x
EBITDA 2020	259
Enterprise value	**1,566**
HoldCo Net debt	165
OpCo Net debt	270
Exit costs	8
Equity value	**1,124**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**452**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	345	39%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	65	7%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	22	2%
Total Acquisition Debt				**431**	**49%**
Invested Equity				**452**	**51%**
Total Sources				**883**	**100%**

Uses		
Purchase of 39.2m shares @ € 22.4/share	879	
Transaction Costs	4	
Total Uses	**883**	

Merlin Entertainments PLC

SUMMARY TABLE (£m)

Market Valuation		
Net Debt 2015	15%	856
Market capitalization	85%	4,686
Number of shares (m)		*1,014*
Enterprise Value	**100%**	**5,542**
EBITDA 2015		402
Implied EV/EBITDA 2015		**13.8x**
Market Capitalization		4,686
Share Price (as of 14-Mar-16)		**£ 4.6**

DCF Valuation		
WACC		5.2%
Perpetual Growth		2.5%
Sum of Disc FCF (16-25)	24%	1,138
Terminal Value	76%	3,658
Enterprise Value	**100%**	**4,796**
Net Debt 2015		856
Equity Value		3,940
Implied Share Price		**£ 3.9**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	69%	2,172
Acquisition Debt	31%	956
Total Sources	**100%**	**3,128**
Purchase of shares		3,112
Transaction costs		16
Total Uses		**3,128**
Equity Value		3,112
Implied Share Price		**£ 3.1**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (£m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	306	320	333	346	357	368	379	389	400	410
NOPAT	220	230	240	249	258	265	273	281	288	296
Tax rate (%)	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*
+ D&A	117	122	127	132	136	140	145	149	153	157
- Capex	(216)	(226)	(235)	(244)	(253)	(260)	(268)	(275)	(283)	(290)
- Δ in Working Capital	18	8	7	7	7	6	6	6	6	6
Unlevered Free Cash Flow	**139**	**134**	**139**	**144**	**148**	**152**	**156**	**160**	**164**	**168**
Discount factor	95%	90%	86%	82%	78%	74%	70%	67%	63%	60%
Present Value of FCF	**132**	**121**	**120**	**117**	**115**	**112**	**109**	**107**	**104**	**101**

WACC CALCULATIONS

Risk free rate (UK 10-Yrs government bond)	1.5%
Market Risk Premium (Damodaran UK)	6.9%
Re-levered beta	0.60
Cost of Equity	**5.5%**
Pre-tax Cost of Debt	5.1%
Tax rate	27.9%
Cost of Debt	**3.7%**
WACC	**5.2%**
TGR	2.5%

VALUATION (£m)

Sum of discounted FCF (2016-25)	24%	1,138
Terminal Value	76%	3,658
Enterprise Value	**100%**	**4,796**
Net Debt 2015		856
Minorities		-
Equity Value		**3,940**
Number of shares (m)		*1,014*
Implied Share Price		**£ 3.9**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (£m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	1,249	1,278	1,342	1,404	1,463	1,518	1,570
growth (%)		*2%*	*5%*	*5%*	*4%*	*4%*	*3%*
EBITDA	411	402	422	442	460	478	494
margin (%)	*33%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*
D&A	(100)	(111)	(117)	(122)	(127)	(132)	(136)
D&A/Sales (%)	*8%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*
EBIT	311	291	306	320	333	346	357
(Net interests)	(62)	(41)	(49)	(50)	(50)	(50)	(50)
Cost of net debt	*0%*	*5%*	*6%*	*5%*	*5%*	*5%*	*5%*
Profit before tax	249	250	257	270	283	296	307
(Corporate tax)	(70)	(70)	(72)	(75)	(79)	(82)	(86)
Corporate tax rate	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*	*28%*
Net income	**179**	**180**	**185**	**194**	**204**	**213**	**222**

Balance Sheet (£m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	2,414	2,475	2,574	2,679	2,787	2,899	3,016
Working Capital	(167)	(151)	(169)	(177)	(184)	(191)	(198)
Other Current Assets	1	2	2	2	2	2	2
Capital Employed	**2,248**	**2,326**	**2,407**	**2,504**	**2,605**	**2,710**	**2,820**
Shareholder's Equity	1,063	1,149	1,154	1,245	1,349	1,457	1,570
Net Financial Debt	863	856	932	938	935	932	930
Other Liabilities	322	321	321	321	321	321	321
Invested Capital	**2,248**	**2,326**	**2,407**	**2,504**	**2,605**	**2,710**	**2,820**

Cash Flow Statement (£m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			422	442	460	478	494
Tax Expense			(72)	(75)	(79)	(82)	(86)
Capital Expenditure			(216)	(226)	(235)	(244)	(253)
-Δ in Working Capital			18	8	7	7	7
Net Interests			(49)	(50)	(50)	(50)	(50)
Cash flow before dividends			**104**	**98**	**103**	**108**	**112**
Dividends paid to HoldCo			(180)	(104)	(100)	(105)	(109)
Payout ratio (%)			*100%*	*56%*	*51%*	*51%*	*51%*
Available Cash			**(76)**	**(5)**	**3**	**3**	**3**

Merlin Entertainments PLC

HOLDING COMPANY ACCOUNTS

P&L (£m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		180	104	100	105	109
Corporate tax received from OpCo		72	75	79	82	86
Transaction costs amortization		(6)	(6)	(3)	-	-
Interests on acquisition debt		(25)	(23)	(21)	(19)	(18)
of which tranche A (Cash)		*(16)*	*(14)*	*(12)*	*(9)*	*(7)*
of which tranche B (Cash)		*(4)*	*(4)*	*(4)*	*(4)*	*(4)*
of which Mezzanine (PIK)		*(5)*	*(5)*	*(6)*	*(6)*	*(7)*
Income before tax		**221**	**150**	**155**	**168**	**177**
(Tax paid)/Tax Credit		(65)	(69)	(74)	(79)	(82)
Net Income		**155**	**81**	**81**	**89**	**95**

Balance Sheet (£m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	3,112	3,112	3,112	3,112	3,112	3,112
Capitalized transaction costs	16	9	3	-	-	-
Cash & cash equivalents	-	57	40	21	7	0
Total Assets	**3,128**	**3,179**	**3,156**	**3,133**	**3,120**	**3,113**
Equity	2,172	2,327	2,408	2,489	2,579	2,673
Senior debt tranche A	765	656	546	437	328	219
Senior debt tranche B	143	143	143	143	143	143
Mezzanine debt	48	53	58	64	70	77
Total Equity & Liabilities	**3,128**	**3,179**	**3,156**	**3,133**	**3,120**	**3,113**

Cash Flow Statement (£m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			180	104	100	105	109
Corporate tax received from OpCo			72	75	79	82	86
(Tax paid)/Tax Credit			(65)	(69)	(74)	(79)	(82)
Cash financial expense			(20)	(18)	(15)	(13)	(11)
Debt repayment			(109)	(109)	(109)	(109)	(109)
Available Cash			**57**	**(17)**	**(19)**	**(14)**	**(7)**

VALUATION (£m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	13.8x
EBITDA 2020	494
Enterprise value	**6,807**
HoldCo Net debt	439
OpCo Net debt	930
Exit costs	34
Equity value	**5,404**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**2,172**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	765	24%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	143	5%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	48	2%
Total Acquisition Debt				**956**	**31%**
Invested Equity				**2,172**	**69%**
Total Sources				**3,128**	**100%**

Uses	
Purchase of 1013.7m shares @ £ 3.1/share	3,112
Transaction Costs	16
Total Uses	**3,128**

Card Factory PLC

SUMMARY TABLE (£m)

Market Valuation		
Net Debt 2015	10%	130
Market capitalization	90%	1,148
Number of shares (m)		*341*
Enterprise Value	**100%**	**1,278**
EBITDA 2015		88
Implied EV/EBITDA 2015		**14.5x**
Market Capitalization		1,148
Share Price (as of 14-Mar-16)		**£ 3.4**

DCF Valuation		
WACC		7.2%
Perpetual Growth		2.0%
Sum of Disc FCF (16-25)	39%	541
Terminal Value	61%	856
Enterprise Value	**100%**	**1,397**
Net Debt 2015		130
Equity Value		1,268
Implied Share Price		**£ 3.7**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	59%	571
Acquisition Debt	41%	392
Total Sources	**100%**	**963**
Purchase of shares		958
Transaction costs		5
Total Uses		**963**
Equity Value		958
Implied Share Price		**£ 2.8**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (£m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	85	90	96	101	105	109	113	117	120	123
NOPAT	68	72	77	80	84	88	91	94	96	99
Tax rate (%)	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*
+ D&A	9	10	11	11	12	12	13	13	13	14
- Capex	(12)	(13)	(14)	(15)	(15)	(16)	(16)	(17)	(17)	(18)
- Δ in Working Capital	(3)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Unlevered Free Cash Flow	**62**	**68**	**72**	**76**	**79**	**83**	**86**	**89**	**91**	**94**
Discount factor	93%	87%	81%	76%	71%	66%	61%	57%	53%	50%
Present Value of FCF	**58**	**59**	**58**	**57**	**56**	**54**	**53**	**51**	**49**	**47**

WACC CALCULATIONS

Risk free rate (UK 10-Yrs government bond)	1.5%
Market Risk Premium (Damodaran UK)	6.9%
Re-levered beta	0.84
Cost of Equity	**7.2%**
Pre-tax Cost of Debt	9.5%
Tax rate	20.0%
Cost of Debt	**7.6%**
WACC	**7.2%**
TGR	2.0%

VALUATION (£m)

Sum of discounted FCF (2016-25)	39%	541
Terminal Value	61%	856
Enterprise Value	**100%**	**1,397**
Net Debt 2015		130
Minorities		-
Equity Value		**1,268**
Number of shares (m)		*341*
Implied Share Price		**£ 3.7**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (£m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	327	353	378	402	426	448	468
growth (%)		*8%*	*7%*	*6%*	*6%*	*5%*	*5%*
EBITDA	80	88	94	100	106	112	117
margin (%)	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*
D&A	(8)	(9)	(9)	(10)	(11)	(11)	(12)
D&A/Sales (%)	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*
EBIT	73	79	85	90	96	101	105
(Net interests)	(41)	(14)	(16)	(16)	(16)	(16)	(16)
Cost of net debt	*0%*	*4%*	*12%*	*12%*	*12%*	*12%*	*12%*
Profit before tax	32	66	69	75	80	85	90
(Corporate tax)	(12)	(14)	(14)	(15)	(16)	(17)	(18)
Corporate tax rate	*38%*	*22%*	*20%*	*20%*	*20%*	*20%*	*20%*
Net income	**20**	**51**	**55**	**60**	**64**	**68**	**72**

Balance Sheet (£m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	371	371	374	377	380	383	387
Working Capital	20	19	22	23	24	26	27
Other Current Assets	(28)	34	34	34	34	34	34
Capital Employed	**363**	**423**	**429**	**434**	**438**	**443**	**448**
Shareholder's Equity	31	283	287	292	296	300	303
Net Financial Debt	319	130	131	131	132	133	134
Other Liabilities	13	11	11	11	11	11	11
Invested Capital	**363**	**423**	**429**	**434**	**438**	**443**	**448**

Cash Flow Statement (£m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			94	100	106	112	117
Tax Expense			(14)	(15)	(16)	(17)	(18)
Capital Expenditure			(12)	(13)	(14)	(15)	(15)
-Δ in Working Capital			(3)	(1)	(1)	(1)	(1)
Net Interests			(16)	(16)	(16)	(16)	(16)
Cash flow before dividends			**50**	**55**	**59**	**63**	**67**
Dividends paid to HoldCo			(51)	(55)	(60)	(64)	(68)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**(2)**	**(0)**	**(0)**	**(1)**	**(1)**

Card Factory PLC

HOLDING COMPANY ACCOUNTS

P&L (£m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		51	55	60	64	68
Corporate tax received from OpCo		14	15	16	17	18
Transaction costs amortization		(2)	(2)	(1)	-	-
Interests on acquisition debt		(10)	(9)	(9)	(8)	(7)
of which tranche A (Cash)		*(7)*	*(6)*	*(5)*	*(4)*	*(3)*
of which tranche B (Cash)		*(2)*	*(2)*	*(2)*	*(2)*	*(2)*
of which Mezzanine (PIK)		*(2)*	*(2)*	*(2)*	*(3)*	*(3)*
Income before tax		**53**	**59**	**66**	**73**	**79**
(Tax paid)/Tax Credit		(12)	(13)	(15)	(16)	(17)
Net Income		**41**	**46**	**52**	**57**	**61**

Balance Sheet (£m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	958	958	958	958	958	958
Capitalized transaction costs	5	3	1	-	-	-
Cash & cash equivalents	-	0	5	15	30	50
Total Assets	**963**	**961**	**964**	**973**	**988**	**1,008**
Equity	571	612	658	710	767	828
Senior debt tranche A	313	269	224	179	134	90
Senior debt tranche B	59	59	59	59	59	59
Mezzanine debt	20	22	24	26	29	32
Total Equity & Liabilities	**963**	**961**	**964**	**973**	**988**	**1,008**

Cash Flow Statement (£m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			51	55	60	64	68
Corporate tax received from OpCo			14	15	16	17	18
(Tax paid)/Tax Credit			(12)	(13)	(15)	(16)	(17)
Cash financial expense			(8)	(7)	(6)	(5)	(4)
Debt repayment			(45)	(45)	(45)	(45)	(45)
Available Cash			**0**	**5**	**10**	**15**	**20**

VALUATION (£m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	14.5x
EBITDA 2020	117
Enterprise value	**1,694**
HoldCo Net debt	130
OpCo Net debt	134
Exit costs	8
Equity value	**1,421**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**571**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	313	33%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	59	6%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	20	2%
Total Acquisition Debt				**392**	**41%**
Invested Equity				**571**	**59%**
Total Sources				**963**	**100%**

Uses		
Purchase of 340.7m shares @ £ 2.8/share	958	
Transaction Costs	5	
Total Uses	**963**	

Broadleaf Co Ltd

SUMMARY TABLE (¥ bn)

Market Valuation		
Net Debt 2015	(22)%	(6,002)
Market capitalization	122%	33,812
Number of shares (m)		*24*
Enterprise Value	**100%**	**27,810**
EBITDA 2015		3,822
Implied EV/EBITDA 2015		**7.3x**
Market Capitalization		33,812
Share Price (as of 14-Mar-16)		**¥ 1397**

DCF Valuation		
WACC		7.4%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	45%	16,458
Terminal Value	55%	20,170
Enterprise Value	**100%**	**36,628**
Net Debt 2015		(6,002)
Equity Value		42,630
Implied Share Price		**¥ 1761.3**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	58%	14,546
Acquisition Debt	42%	10,730
Total Sources	**100%**	**25,277**
Purchase of shares		25,150
Transaction costs		126
Total Uses		**25,277**
Equity Value		25,150
Implied Share Price		**¥ 1039.1**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow (¥ bn)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	2,685	2,736	2,786	2,833	2,878	2,921	2,965	3,010	3,055	3,101
NOPAT	1,799	1,833	1,866	1,898	1,928	1,957	1,987	2,017	2,047	2,077
Tax rate (%)	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*	*33%*
+ D&A	1,213	1,236	1,259	1,280	1,301	1,320	1,340	1,360	1,380	1,401
- Capex	(863)	(880)	(896)	(911)	(925)	(939)	(953)	(968)	(982)	(997)
- Δ in Working Capital	712	(6)	(6)	(6)	(6)	(5)	(5)	(5)	(6)	(6)
Unlevered Free Cash Flow	**2,861**	**2,184**	**2,223**	**2,262**	**2,298**	**2,333**	**2,368**	**2,403**	**2,439**	**2,476**
Discount factor	93%	87%	81%	75%	70%	65%	61%	56%	53%	49%
Present Value of FCF	**2,663**	**1,893**	**1,794**	**1,699**	**1,607**	**1,519**	**1,435**	**1,356**	**1,281**	**1,211**

WACC CALCULATIONS

Risk free rate (Japan 10-Yrs government bond)	-0.1%
Market Risk Premium (Damodaran Asia)	7.8%
Re-levered beta	0.87
Cost of Equity	**6.6%**
Pre-tax Cost of Debt	2.8%
Tax rate	33.0%
Cost of Debt	**1.9%**
WACC	**7.4%**
TGR	1.5%

VALUATION (¥ bn)

Sum of discounted FCF (2016-25)	45%	16,458
Terminal Value	55%	20,170
Enterprise Value	**100%**	**36,628**
Net Debt 2015		(6,002)
Minorities		-
Equity Value		**42,630**
Number of shares (m)		*24*
Implied Share Price		**¥ 1761.3**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L (¥ bn)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	18,894	16,824	17,161	17,487	17,802	18,104	18,394
growth (%)		*-11%*	*2%*	*2%*	*2%*	*2%*	*2%*
EBITDA	5,501	3,822	3,899	3,973	4,044	4,113	4,179
margin (%)	*29%*	*23%*	*23%*	*23%*	*23%*	*23%*	*23%*
D&A	(1,336)	(1,308)	(1,213)	(1,236)	(1,259)	(1,280)	(1,301)
D&A/Sales (%)	*7%*	*8%*	*7%*	*7%*	*7%*	*7%*	*7%*
EBIT	4,165	2,514	2,685	2,736	2,786	2,833	2,878
(Net interests)	(67)	(21)	(76)	(78)	(78)	(78)	(79)
Cost of net debt	*0%*	*0%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*
Profit before tax	4,099	2,493	2,609	2,659	2,708	2,755	2,799
(Corporate tax)	(1,902)	(1,129)	(861)	(877)	(894)	(909)	(924)
Corporate tax rate	*46%*	*45%*	*33%*	*33%*	*33%*	*33%*	*33%*
Net income	**2,197**	**1,365**	**1,748**	**1,781**	**1,814**	**1,846**	**1,876**

Balance Sheet (¥ bn)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	12,802	12,533	12,183	11,826	11,463	11,093	10,718
Working Capital	(444)	1,041	329	336	342	348	353
Other Current Assets	731	612	612	612	612	612	612
Capital Employed	**13,089**	**14,186**	**13,124**	**12,774**	**12,417**	**12,053**	**11,684**
Shareholder's Equity	21,294	19,386	19,769	19,803	19,835	19,867	19,897
Net Financial Debt	(9,701)	(6,002)	(7,447)	(7,831)	(8,220)	(8,615)	(9,015)
Other Liabilities	1,496	802	802	802	802	802	802
Invested Capital	**13,089**	**14,186**	**13,124**	**12,774**	**12,417**	**12,053**	**11,684**

Cash Flow Statement (¥ bn	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			3,899	3,973	4,044	4,113	4,179
Tax Expense			(861)	(877)	(894)	(909)	(924)
Capital Expenditure			(863)	(880)	(896)	(911)	(925)
-Δ in Working Capital			712	(6)	(6)	(6)	(6)
Net Interests			(76)	(78)	(78)	(78)	(79)
Cash flow before dividends			**2,810**	**2,132**	**2,171**	**2,209**	**2,245**
Dividends paid to HoldCo			(1,365)	(1,748)	(1,781)	(1,814)	(1,846)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**1,445**	**384**	**390**	**395**	**400**

Broadleaf Co Ltd

HOLDING COMPANY ACCOUNTS

P&L (¥ bn)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		1,365	1,748	1,781	1,814	1,846
Corporate tax received from OpCo		861	877	894	909	924
Transaction costs amortization		(51)	(51)	(25)	-	-
Interests on acquisition debt		(278)	(257)	(237)	(218)	(199)
of which tranche A (Cash)		*(182)*	*(156)*	*(130)*	*(104)*	*(78)*
of which tranche B (Cash)		*(42)*	*(42)*	*(42)*	*(42)*	*(42)*
of which Mezzanine (PIK)		*(54)*	*(59)*	*(65)*	*(71)*	*(79)*
Income before tax		**1,897**	**2,318**	**2,412**	**2,505**	**2,571**
(Tax paid)/Tax Credit		(775)	(805)	(836)	(867)	(889)
Net Income		**1,122**	**1,513**	**1,576**	**1,638**	**1,682**

Balance Sheet (¥ bn)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	25,150	25,150	25,150	25,150	25,150	25,150
Capitalized transaction costs	126	76	25	-	-	-
Cash & cash equivalents	-	0	396	836	1,320	1,854
Total Assets	**25,277**	**25,226**	**25,572**	**25,986**	**26,470**	**27,004**
Equity	14,546	15,668	17,181	18,757	20,396	22,078
Senior debt tranche A	8,584	7,358	6,132	4,905	3,679	2,453
Senior debt tranche B	1,610	1,610	1,610	1,610	1,610	1,610
Mezzanine debt	537	590	649	714	786	864
Total Equity & Liabilities	**25,277**	**25,226**	**25,572**	**25,986**	**26,470**	**27,004**

Cash Flow Statement (¥ bn	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			1,365	1,748	1,781	1,814	1,846
Corporate tax received from OpCo			861	877	894	909	924
(Tax paid)/Tax Credit			(775)	(805)	(836)	(867)	(889)
Cash financial expense			(224)	(198)	(172)	(146)	(120)
Debt repayment			(1,226)	(1,226)	(1,226)	(1,226)	(1,226)
Available Cash			**0**	**396**	**440**	**483**	**534**

VALUATION (¥ bn)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	7.3x
EBITDA 2020	4,179
Enterprise value	**30,405**
HoldCo Net debt	3,072
OpCo Net debt	(9,015)
Exit costs	152
Equity value	**36,195**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**14,546**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	8,584	34%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	1,610	6%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	537	2%
Total Acquisition Debt				**10,730**	**42%**
Invested Equity				**14,546**	**58%**
Total Sources				**25,277**	**100%**

Uses		
Purchase of 24.2m shares @ ¥ 1039.1/share	25,150	
Transaction Costs	126	
Total Uses	**25,277**	

Hilton Worldwide Holdings Inc.

SUMMARY TABLE ($m)

Market Valuation		
Net Debt 2015	32%	9,938
Market capitalization	68%	20,964
Number of shares (m)		*987*
Enterprise Value	**100%**	**30,902**
EBITDA 2015		2,763
Implied EV/EBITDA 2015		**11.2x**
Market Capitalization		20,964
Share Price (as of 14-Mar-16)		**$ 21.2**

DCF Valuation		
WACC		7.6%
Perpetual Growth		2.0%
Sum of Disc FCF (16-25)	40%	14,712
Terminal Value	60%	21,639
Enterprise Value	**100%**	**36,351**
Net Debt 2015		9,938
Equity Value		26,413
Implied Share Price		**$ 26.7**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	53%	11,214
Acquisition Debt	47%	9,775
Total Sources	**100%**	**20,989**
Purchase of shares		20,884
Transaction costs		105
Total Uses		**20,989**
Equity Value		20,884
Implied Share Price		**$ 21.1**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow ($m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	2,205	2,333	2,463	2,596	2,731	2,868	2,994	3,108	3,207	3,291
NOPAT	1,460	1,544	1,631	1,719	1,808	1,899	1,982	2,057	2,123	2,178
Tax rate (%)	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*	*34%*
+ D&A	724	766	809	853	897	942	983	1,021	1,053	1,081
- Capex	(478)	(506)	(534)	(563)	(592)	(622)	(649)	(674)	(695)	(713)
- Δ in Working Capital	63	57	58	59	60	61	56	51	44	37
Unlevered Free Cash Flow	**1,769**	**1,862**	**1,964**	**2,068**	**2,173**	**2,280**	**2,373**	**2,455**	**2,526**	**2,583**
Discount factor	93%	86%	80%	75%	69%	65%	60%	56%	52%	48%
Present Value of FCF	**1,645**	**1,609**	**1,578**	**1,545**	**1,510**	**1,472**	**1,425**	**1,371**	**1,311**	**1,247**

WACC CALCULATIONS

Risk free rate (US sovereing 10yr bond yield)	1.9%
Market Risk Premium (Damodaran U.S.)	6.3%
Re-levered beta	1.15
Cost of Equity	**9.1%**
Pre-tax Cost of Debt	5.4%
Tax rate	33.8%
Cost of Debt	**3.6%**
WACC	**7.6%**
TGR	2.0%

VALUATION ($m)

Sum of discounted FCF (2016-25)	40%	14,712
Terminal Value	60%	21,639
Enterprise Value	**100%**	**36,351**
Net Debt 2015		9,938
Minorities		-
Equity Value		**26,413**
Number of shares (m)		*987*
Implied Share Price		**$ 26.7**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	10,502	11,272	11,948	12,641	13,349	14,070	14,802
growth (%)		*7%*	*6%*	*6%*	*6%*	*5%*	*5%*
EBITDA	2,301	2,763	2,929	3,099	3,272	3,449	3,628
margin (%)	*22%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*
D&A	(628)	(692)	(724)	(766)	(809)	(853)	(897)
D&A/Sales (%)	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*
EBIT	1,673	2,071	2,205	2,333	2,463	2,596	2,731
(Net interests)	(526)	(575)	(555)	(555)	(548)	(540)	(531)
Cost of net debt	*0%*	*5%*	*6%*	*6%*	*6%*	*6%*	*6%*
Profit before tax	1,147	1,496	1,650	1,778	1,916	2,057	2,200
(Corporate tax)	(465)	(80)	(558)	(601)	(648)	(695)	(744)
Corporate tax rate	*41%*	*5%*	*34%*	*34%*	*34%*	*34%*	*34%*
Net income	**682**	**1,416**	**1,092**	**1,177**	**1,268**	**1,362**	**1,456**

Balance Sheet ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	23,626	23,131	22,885	22,625	22,350	22,060	21,755
Working Capital	(872)	(921)	(984)	(1,041)	(1,100)	(1,159)	(1,219)
Other Current Assets	685	658	658	658	658	658	658
Capital Employed	**23,439**	**22,868**	**22,559**	**22,241**	**21,908**	**21,559**	**21,194**
Shareholder's Equity	4,714	5,951	5,630	5,715	5,806	5,899	5,994
Net Financial Debt	11,126	9,938	9,950	9,548	9,123	8,681	8,221
Other Liabilities	7,599	6,979	6,979	6,979	6,979	6,979	6,979
Invested Capital	**23,439**	**22,868**	**22,559**	**22,241**	**21,908**	**21,559**	**21,194**

Cash Flow Statement ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			2,929	3,099	3,272	3,449	3,628
Tax Expense			(558)	(601)	(648)	(695)	(744)
Capital Expenditure			(478)	(506)	(534)	(563)	(592)
-Δ in Working Capital			63	57	58	59	60
Net Interests			(555)	(555)	(548)	(540)	(531)
Cash flow before dividends			**1,401**	**1,494**	**1,601**	**1,711**	**1,821**
Dividends paid to HoldCo			(1,413)	(1,092)	(1,177)	(1,268)	(1,362)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**(12)**	**402**	**425**	**442**	**460**

Hilton Worldwide Holdings Inc.

HOLDING COMPANY ACCOUNTS

P&L ($m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		1,413	1,092	1,177	1,268	1,362
Corporate tax received from OpCo		558	601	648	695	744
Transaction costs amortization		(42)	(42)	(21)	-	-
Interests on acquisition debt		(253)	(234)	(216)	(198)	(181)
of which tranche A (Cash)		*(166)*	*(142)*	*(118)*	*(95)*	*(71)*
of which tranche B (Cash)		*(38)*	*(38)*	*(38)*	*(38)*	*(38)*
of which Mezzanine (PIK)		*(49)*	*(54)*	*(59)*	*(65)*	*(72)*
Income before tax		**1,676**	**1,417**	**1,587**	**1,765**	**1,924**
(Tax paid)/Tax Credit		(482)	(526)	(587)	(650)	(705)
Net Income		**1,194**	**891**	**1,000**	**1,116**	**1,219**

Balance Sheet ($m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	20,884	20,884	20,884	20,884	20,884	20,884
Capitalized transaction costs	105	63	21	-	-	-
Cash & cash equivalents	-	168	37	0	64	237
Total Assets	**20,989**	**21,114**	**20,942**	**20,884**	**20,947**	**21,120**
Equity	11,214	12,408	13,299	14,299	15,414	16,633
Senior debt tranche A	7,820	6,703	5,586	4,468	3,351	2,234
Senior debt tranche B	1,466	1,466	1,466	1,466	1,466	1,466
Mezzanine debt	489	538	591	651	716	787
Total Equity & Liabilities	**20,989**	**21,114**	**20,942**	**20,884**	**20,947**	**21,120**

Cash Flow Statement ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			1,413	1,092	1,177	1,268	1,362
Corporate tax received from OpCo			558	601	648	695	744
(Tax paid)/Tax Credit			(482)	(526)	(587)	(650)	(705)
Cash financial expense			(204)	(181)	(157)	(133)	(110)
Debt repayment			(1,117)	(1,117)	(1,117)	(1,117)	(1,117)
Available Cash			**168**	**(131)**	**(37)**	**63**	**173**

VALUATION ($m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	11.2x
EBITDA 2020	3,628
Enterprise value	**40,578**
HoldCo Net debt	4,251
OpCo Net debt	8,221
Exit costs	203
Equity value	**27,904**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**11,214**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	7,820	37%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	1,466	7%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	489	2%
Total Acquisition Debt				**9,775**	**47%**
Invested Equity				**11,214**	**53%**
Total Sources				**20,989**	**100%**

Uses		
Purchase of 987.5m shares @ $ 21.1/share	20,884	
Transaction Costs	105	
Total Uses	**20,989**	

Hilton Worldwide Holdings Inc.

Quintiles Transnational Holdings Inc.

SUMMARY TABLE ($m)

Market Valuation		
Net Debt 2015	16%	1,491
Market capitalization	84%	7,763
Number of shares (m)		*119*
Enterprise Value	**100%**	**9,254**
EBITDA 2015		774
Implied EV/EBITDA 2015		**12.0x**
Market Capitalization		7,763
Share Price (as of 14-Mar-16)		**$ 65**

DCF Valuation		
WACC		6.9%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	39%	4,288
Terminal Value	61%	6,777
Enterprise Value	**100%**	**11,065**
Net Debt 2015		1,491
Equity Value		9,574
Implied Share Price		**$ 80.2**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	58%	4,042
Acquisition Debt	42%	2,965
Total Sources	**100%**	**7,007**
Purchase of shares		6,971
Transaction costs		35
Total Uses		**7,007**
Equity Value		6,971
Implied Share Price		**$ 58.4**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow ($m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	683	730	776	819	858	892	923	951	975	994
NOPAT	485	519	551	581	609	633	655	675	692	706
Tax rate (%)	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*
+ D&A	137	147	156	165	173	179	186	191	196	200
- Capex	(89)	(95)	(101)	(107)	(112)	(116)	(120)	(124)	(127)	(130)
- Δ in Working Capital	(15)	(72)	(69)	(65)	(59)	(52)	(47)	(42)	(36)	(30)
Unlevered Free Cash Flow	**518**	**498**	**537**	**575**	**611**	**644**	**673**	**700**	**725**	**747**
Discount factor	94%	88%	82%	77%	72%	67%	63%	59%	55%	51%
Present Value of FCF	**485**	**436**	**440**	**440**	**438**	**432**	**423**	**411**	**398**	**384**

WACC CALCULATIONS

Risk free rate (US sovereing 10yr bond yield)	1.9%
Market Risk Premium (Damodaran U.S.)	6.3%
Re-levered beta	0.91
Cost of Equity	**7.6%**
Pre-tax Cost of Debt	3.3%
Tax rate	29.0%
Cost of Debt	**2.3%**
WACC	**6.9%**
TGR	1.5%

VALUATION ($m)

Sum of discounted FCF (2016-25)	39%	4,288
Terminal Value	61%	6,777
Enterprise Value	**100%**	**11,065**
Net Debt 2015		1,491
Minorities		-
Equity Value		**9,574**
Number of shares (m)		*119*
Implied Share Price		**$ 80.2**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	5,460	5,738	6,182	6,615	7,028	7,415	7,767
growth (%)		*5%*	*8%*	*7%*	*6%*	*6%*	*5%*
EBITDA	711	774	820	877	932	983	1,030
margin (%)	*13%*	*13%*	*13%*	*13%*	*13%*	*13%*	*13%*
D&A	(121)	(128)	(137)	(147)	(156)	(165)	(173)
D&A/Sales (%)	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*
EBIT	590	647	683	730	776	819	858
(Net interests)	(88)	(108)	(63)	(61)	(61)	(61)	(60)
Cost of net debt	*0%*	*8%*	*4%*	*4%*	*4%*	*4%*	*5%*
Profit before tax	502	539	619	669	715	758	797
(Corporate tax)	(150)	(159)	(180)	(194)	(207)	(220)	(231)
Corporate tax rate	*30%*	*29%*	*29%*	*29%*	*29%*	*29%*	*29%*
Net income	**352**	**380**	**440**	**475**	**508**	**538**	**566**

Balance Sheet ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	1,150	1,514	1,466	1,414	1,359	1,301	1,241
Working Capital	856	1,019	1,034	1,106	1,175	1,240	1,299
Other Current Assets	258	235	235	235	235	235	235
Capital Employed	**2,264**	**2,769**	**2,735**	**2,755**	**2,770**	**2,776**	**2,775**
Shareholder's Equity	(704)	(336)	(276)	(241)	(208)	(178)	(150)
Net Financial Debt	1,416	1,491	1,397	1,383	1,364	1,340	1,311
Other Liabilities	1,552	1,614	1,614	1,614	1,614	1,614	1,614
Invested Capital	**2,264**	**2,769**	**2,735**	**2,755**	**2,770**	**2,776**	**2,775**

Cash Flow Statement ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			820	877	932	983	1,030
Tax Expense			(180)	(194)	(207)	(220)	(231)
Capital Expenditure			(89)	(95)	(101)	(107)	(112)
-Δ in Working Capital			(15)	(72)	(69)	(65)	(59)
Net Interests			(63)	(61)	(61)	(61)	(60)
Cash flow before dividends			**473**	**454**	**493**	**531**	**568**
Dividends paid to HoldCo			(380)	(440)	(475)	(508)	(538)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**93**	**14**	**18**	**24**	**30**

Quintiles Transnational Holdings Inc.

HOLDING COMPANY ACCOUNTS

P&L ($m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		380	440	475	508	538
Corporate tax received from OpCo		180	194	207	220	231
Transaction costs amortization		(14)	(14)	(7)	-	-
Interests on acquisition debt		(77)	(71)	(66)	(60)	(55)
of which tranche A (Cash)		*(50)*	*(43)*	*(36)*	*(29)*	*(22)*
of which tranche B (Cash)		*(12)*	*(12)*	*(12)*	*(12)*	*(12)*
of which Mezzanine (PIK)		*(15)*	*(16)*	*(18)*	*(20)*	*(22)*
Income before tax		**469**	**549**	**610**	**667**	**714**
(Tax paid)/Tax Credit		(159)	(176)	(193)	(210)	(223)
Net Income		**310**	**373**	**417**	**458**	**491**

Balance Sheet ($m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	6,971	6,971	6,971	6,971	6,971	6,971
Capitalized transaction costs	35	21	7	-	-	-
Cash & cash equivalents	-	0	65	167	306	480
Total Assets	**7,007**	**6,993**	**7,043**	**7,139**	**7,277**	**7,451**
Equity	4,042	4,352	4,725	5,141	5,599	6,090
Senior debt tranche A	2,372	2,033	1,694	1,355	1,016	678
Senior debt tranche B	445	445	445	445	445	445
Mezzanine debt	148	163	179	197	217	239
Total Equity & Liabilities	**7,007**	**6,993**	**7,043**	**7,139**	**7,277**	**7,451**

Cash Flow Statement ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			380	440	475	508	538
Corporate tax received from OpCo			180	194	207	220	231
(Tax paid)/Tax Credit			(159)	(176)	(193)	(210)	(223)
Cash financial expense			(62)	(55)	(48)	(40)	(33)
Debt repayment			(339)	(339)	(339)	(339)	(339)
Available Cash			**0**	**64**	**103**	**138**	**174**

VALUATION ($m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	12.0x
EBITDA 2020	1,030
Enterprise value	**12,311**
HoldCo Net debt	881
OpCo Net debt	1,311
Exit costs	62
Equity value	**10,057**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**4,042**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	2,372	34%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	445	6%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	148	2%
Total Acquisition Debt				**2,965**	**42%**
Invested Equity				**4,042**	**58%**
Total Sources				**7,007**	**100%**

Uses		
Purchase of 119.4m shares @ $ 58.4/share	6,971	
Transaction Costs	35	
Total Uses	**7,007**	

Spirit Aerosystems Holdings Inc.

SUMMARY TABLE ($m)

Market Valuation		
Net Debt 2015	3%	176
Market capitalization	97%	5,799
Number of shares (m)		*126*
Enterprise Value	**100%**	**5,975**
EBITDA 2015		1,051
Implied EV/EBITDA 2015		**5.7x**
Market Capitalization		5,799
Share Price (as of 14-Mar-16)		**$ 46.1**

DCF Valuation		
WACC		9.4%
Perpetual Growth		2.0%
Sum of Disc FCF (16-25)	51%	3,167
Terminal Value	49%	3,028
Enterprise Value	**100%**	**6,195**
Net Debt 2015		176
Equity Value		6,019
Implied Share Price		**$ 47.8**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	22%	1,242
Acquisition Debt	78%	4,516
Total Sources	**100%**	**5,758**
Purchase of shares		5,729
Transaction costs		29
Total Uses		**5,758**
Equity Value		5,729
Implied Share Price		**$ 45.5**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow ($m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	768	778	792	810	831	856	880	903	924	945
NOPAT	522	529	539	551	565	582	598	614	628	642
Tax rate (%)	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*
+ D&A	193	196	200	204	209	215	222	227	233	238
- Capex	(217)	(220)	(224)	(229)	(235)	(242)	(249)	(256)	(262)	(267)
- Δ in Working Capital	(24)	(24)	(31)	(39)	(47)	(56)	(54)	(51)	(48)	(45)
Unlevered Free Cash Flow	**474**	**481**	**483**	**486**	**492**	**499**	**517**	**534**	**551**	**567**
Discount factor	91%	84%	76%	70%	64%	58%	53%	49%	45%	41%
Present Value of FCF	**433**	**402**	**369**	**340**	**315**	**292**	**276**	**261**	**246**	**232**

WACC CALCULATIONS

Risk free rate (US sovereing 10yr bond yield)	1.9%
Market Risk Premium (Damodaran U.S.)	6.3%
Re-levered beta	1.23
Cost of Equity	**9.5%**
Pre-tax Cost of Debt	4.7%
Tax rate	32.0%
Cost of Debt	**3.2%**
WACC	**9.4%**
TGR	2.0%

VALUATION ($m)

Sum of discounted FCF (2016-25)	51%	3,167
Terminal Value	49%	3,028
Enterprise Value	**100%**	**6,195**
Net Debt 2015		176
Minorities		-
Equity Value		**6,019**
Number of shares (m)		*126*
Implied Share Price		**$ 47.8**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	6,799	6,644	6,710	6,804	6,927	7,079	7,263
growth (%)		*-2%*	*1%*	*1%*	*2%*	*2%*	*3%*
EBITDA	553	1,051	961	974	992	1,014	1,040
margin (%)	*8%*	*16%*	*14%*	*14%*	*14%*	*14%*	*14%*
D&A	(199)	(188)	(193)	(196)	(200)	(204)	(209)
D&A/Sales (%)	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
EBIT	354	863	768	778	792	810	831
(Net interests)	(92)	(55)	(35)	(41)	(42)	(43)	(44)
Cost of net debt	*0%*	*7%*	*20%*	*8%*	*8%*	*7%*	*7%*
Profit before tax	262	808	733	737	750	767	787
(Corporate tax)	96	(21)	(234)	(236)	(240)	(245)	(252)
Corporate tax rate	*-37%*	*3%*	*32%*	*32%*	*32%*	*32%*	*32%*
Net income	**358**	**788**	**498**	**501**	**510**	**522**	**535**

Balance Sheet ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	2,111	2,478	2,502	2,527	2,552	2,577	2,603
Working Capital	1,747	1,693	1,717	1,741	1,773	1,812	1,859
Other Current Assets	316	30	30	30	30	30	30
Capital Employed	**4,174**	**4,202**	**4,250**	**4,299**	**4,355**	**4,419**	**4,492**
Shareholder's Equity	1,622	2,120	1,831	1,834	1,843	1,854	1,868
Net Financial Debt	776	176	513	559	606	659	718
Other Liabilities	1,776	1,906	1,906	1,906	1,906	1,906	1,906
Invested Capital	**4,174**	**4,202**	**4,250**	**4,299**	**4,355**	**4,419**	**4,492**

Cash Flow Statement ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			961	974	992	1,014	1,040
Tax Expense			(234)	(236)	(240)	(245)	(252)
Capital Expenditure			(217)	(220)	(224)	(229)	(235)
-Δ in Working Capital			(24)	(24)	(31)	(39)	(47)
Net Interests			(35)	(41)	(42)	(43)	(44)
Cash flow before dividends			**450**	**453**	**454**	**457**	**462**
Dividends paid to HoldCo			(788)	(498)	(501)	(510)	(522)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**(337)**	**(45)**	**(47)**	**(53)**	**(59)**

Spirit Aerosystems Holdings Inc.

HOLDING COMPANY ACCOUNTS

P&L ($m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		788	498	501	510	522
Corporate tax received from OpCo		234	236	240	245	252
Transaction costs amortization		(12)	(12)	(6)	-	-
Interests on acquisition debt		(117)	(108)	(100)	(92)	(84)
of which tranche A (Cash)		*(77)*	*(66)*	*(55)*	*(44)*	*(33)*
of which tranche B (Cash)		*(18)*	*(18)*	*(18)*	*(18)*	*(18)*
of which Mezzanine (PIK)		*(23)*	*(25)*	*(27)*	*(30)*	*(33)*
Income before tax		**894**	**614**	**636**	**664**	**690**
(Tax paid)/Tax Credit		(206)	(206)	(214)	(224)	(233)
Net Income		**688**	**409**	**421**	**440**	**456**

Balance Sheet ($m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	5,729	5,729	5,729	5,729	5,729	5,729
Capitalized transaction costs	29	17	6	-	-	-
Cash & cash equivalents	-	206	135	73	27	0
Total Assets	**5,758**	**5,952**	**5,870**	**5,803**	**5,756**	**5,729**
Equity	1,242	1,930	2,339	2,760	3,200	3,656
Senior debt tranche A	3,613	3,097	2,581	2,064	1,548	1,032
Senior debt tranche B	677	677	677	677	677	677
Mezzanine debt	226	248	273	301	331	364
Total Equity & Liabilities	**5,758**	**5,952**	**5,870**	**5,803**	**5,756**	**5,729**

Cash Flow Statement ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			788	498	501	510	522
Corporate tax received from OpCo			234	236	240	245	252
(Tax paid)/Tax Credit			(206)	(206)	(214)	(224)	(233)
Cash financial expense			(94)	(83)	(72)	(62)	(51)
Debt repayment			(516)	(516)	(516)	(516)	(516)
Available Cash			**206**	**(71)**	**(62)**	**(46)**	**(27)**

VALUATION ($m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	5.7x
EBITDA 2020	1,040
Enterprise value	**5,912**
HoldCo Net debt	2,073
OpCo Net debt	718
Exit costs	30
Equity value	**3,091**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**1,242**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	3,613	63%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	677	12%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	226	4%
Total Acquisition Debt				**4,516**	**78%**
Invested Equity				**1,242**	**22%**
Total Sources				**5,758**	**100%**

Uses		
Purchase of 125.9m shares @ $ 45.5/share	5,729	
Transaction Costs	29	
Total Uses	**5,758**	

Dunkin' Brands Group Inc.

SUMMARY TABLE ($m)

Market Valuation		
Net Debt 2015	34%	2,193
Market capitalization	66%	4,280
Number of shares (m)		*93*
Enterprise Value	**100%**	**6,473**
EBITDA 2015		365
Implied EV/EBITDA 2015		**17.7x**
Market Capitalization		4,280
Share Price (as of 14-Mar-16)		**$ 46.2**

DCF Valuation		
WACC		5.0%
Perpetual Growth		1.5%
Sum of Disc FCF (16-25)	29%	1,925
Terminal Value	71%	4,749
Enterprise Value	**100%**	**6,674**
Net Debt 2015		2,193
Equity Value		4,481
Implied Share Price		**$ 48.4**

LBO Valuation		
Desired IRR		20.0%
Funds' Equity Value	75%	2,553
Acquisition Debt	25%	847
Total Sources	**100%**	**3,400**
Purchase of shares		3,383
Transaction costs		17
Total Uses		**3,400**
Equity Value		3,383
Implied Share Price		**$ 36.5**

DCF Valuation

DISCOUNTED CASH FLOWS

Free Cash Flow ($m)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
EBIT	364	383	400	414	426	434	442	450	458	465
NOPAT	220	231	242	250	257	262	267	272	277	281
Tax rate (%)	*40%*	*40%*	*40%*	*40%*	*40%*	*40%*	*40%*	*40%*	*40%*	*40%*
+ D&A	50	53	55	57	59	60	61	62	63	64
- Capex	(52)	(54)	(57)	(59)	(60)	(62)	(63)	(64)	(65)	(66)
- Δ in Working Capital	(8)	(2)	(2)	(2)	(1)	(1)	(1)	(1)	(1)	(1)
Unlevered Free Cash Flow	**211**	**228**	**238**	**247**	**254**	**260**	**265**	**270**	**274**	**279**
Discount factor	95%	91%	86%	82%	78%	75%	71%	68%	64%	61%
Present Value of FCF	**200**	**206**	**205**	**203**	**199**	**194**	**188**	**182**	**176**	**171**

WACC CALCULATIONS

Risk free rate (US sovereing 10yr bond yield)	1.9%
Market Risk Premium (Damodaran U.S.)	6.3%
Re-levered beta	0.72
Cost of Equity	**6.3%**
Pre-tax Cost of Debt	3.9%
Tax rate	39.6%
Cost of Debt	**2.3%**
WACC	**5.0%**
TGR	1.5%

VALUATION ($m)

Sum of discounted FCF (2016-25)	29%	1,925
Terminal Value	71%	4,749
Enterprise Value	**100%**	**6,674**
Net Debt 2015		2,193
Minorities		-
Equity Value		**4,481**
Number of shares (m)		*93*
Implied Share Price		**$ 48.4**

LBO Valuation

OPERATING COMPANY ACCOUNTS

P&L ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Sales	749	811	860	904	944	978	1,005
growth (%)		*8%*	*6%*	*5%*	*4%*	*4%*	*3%*
EBITDA	384	365	414	436	455	471	484
margin (%)	*51%*	*45%*	*48%*	*48%*	*48%*	*48%*	*48%*
D&A	(46)	(45)	(50)	(53)	(55)	(57)	(59)
D&A/Sales (%)	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*
EBIT	339	320	364	383	400	414	426
(Net interests)	(83)	(118)	(90)	(89)	(89)	(88)	(88)
Cost of net debt	*0%*	*7%*	*4%*	*4%*	*4%*	*4%*	*4%*
Profit before tax	256	202	274	294	311	326	337
(Corporate tax)	(80)	(96)	(108)	(116)	(123)	(129)	(133)
Corporate tax rate	*31%*	*48%*	*40%*	*40%*	*40%*	*40%*	*40%*
Net income	**176**	**105**	**166**	**178**	**188**	**197**	**204**

Balance Sheet ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Non-Current Assets	2,731	2,639	2,641	2,642	2,644	2,646	2,647
Working Capital	42	34	42	45	47	48	50
Other Current Assets	129	244	244	244	244	244	244
Capital Employed	**2,903**	**2,918**	**2,927**	**2,931**	**2,935**	**2,938**	**2,941**
Shareholder's Equity	375	(221)	(160)	(148)	(138)	(129)	(122)
Net Financial Debt	1,599	2,193	2,142	2,134	2,127	2,122	2,118
Other Liabilities	928	946	946	946	946	946	946
Invested Capital	**2,903**	**2,918**	**2,927**	**2,931**	**2,935**	**2,938**	**2,941**

Cash Flow Statement ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
EBITDA			414	436	455	471	484
Tax Expense			(108)	(116)	(123)	(129)	(133)
Capital Expenditure			(52)	(54)	(57)	(59)	(60)
-Δ in Working Capital			(8)	(2)	(2)	(2)	(1)
Net Interests			(90)	(89)	(89)	(88)	(88)
Cash flow before dividends			**156**	**174**	**184**	**193**	**201**
Dividends paid to HoldCo			(105)	(166)	(178)	(188)	(197)
Payout ratio (%)			*100%*	*100%*	*100%*	*100%*	*100%*
Available Cash			**51**	**8**	**7**	**5**	**4**

Dunkin' Brands Group Inc.

HOLDING COMPANY ACCOUNTS

P&L ($m)	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo		105	166	178	188	197
Corporate tax received from OpCo		108	116	123	129	133
Transaction costs amortization		(7)	(7)	(3)	-	-
Interests on acquisition debt		(22)	(20)	(19)	(17)	(16)
of which tranche A (Cash)		*(14)*	*(12)*	*(10)*	*(8)*	*(6)*
of which tranche B (Cash)		*(3)*	*(3)*	*(3)*	*(3)*	*(3)*
of which Mezzanine (PIK)		*(4)*	*(5)*	*(5)*	*(6)*	*(6)*
Income before tax		**185**	**255**	**279**	**300**	**314**
(Tax paid)/Tax Credit		(99)	(109)	(118)	(126)	(131)
Net Income		**86**	**146**	**161**	**174**	**183**

Balance Sheet ($m)	2015A	2016E	2017E	2018E	2019E	2020E
OpCo's shares	3,383	3,383	3,383	3,383	3,383	3,383
Capitalized transaction costs	17	10	3	-	-	-
Cash & cash equivalents	-	0	61	133	216	309
Total Assets	**3,400**	**3,393**	**3,447**	**3,516**	**3,599**	**3,692**
Equity	2,553	2,639	2,785	2,946	3,119	3,303
Senior debt tranche A	678	581	484	387	290	194
Senior debt tranche B	127	127	127	127	127	127
Mezzanine debt	42	47	51	56	62	68
Total Equity & Liabilities	**3,400**	**3,393**	**3,447**	**3,516**	**3,599**	**3,692**

Cash Flow Statement ($m)	2014A	2015A	2016E	2017E	2018E	2019E	2020E
Dividends received from OpCo			105	166	178	188	197
Corporate tax received from OpCo			108	116	123	129	133
(Tax paid)/Tax Credit			(99)	(109)	(118)	(126)	(131)
Cash financial expense			(18)	(16)	(14)	(12)	(9)
Debt repayment			(97)	(97)	(97)	(97)	(97)
Available Cash			**0**	**61**	**73**	**83**	**93**

VALUATION ($m)

Exit at Dec 31st, 2020	
Exit EBITDA multiple	17.7x
EBITDA 2020	484
Enterprise value	**8,593**
HoldCo Net debt	80
OpCo Net debt	2,118
Exit costs	43
Equity value	**6,352**

Required investment at entry	
IRR	20.0%
CoC	2.5x
Invested Equity	**2,553**

Sources					
Senior Tranche A	@Cash Int	2.12%	7 Yrs Yearly Repayment	678	20%
Senior Tranche B	@Cash Int	2.62%	8 Yrs Bullet Repayment	127	4%
Mezzanine Facility	@PIK Int	10.00%	9 Yrs Bullet Repayment	42	1%
Total Acquisition Debt				**847**	**25%**
Invested Equity				**2,553**	**75%**
Total Sources				**3,400**	**100%**

Uses		
Purchase of 92.6m shares @ $ 36.5/share	3,383	
Transaction Costs	17	
Total Uses	**3,400**	