



Equity Valuation: Amazon.com

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Abstract

This dissertation is performed towards the final goal of achieving a value for Amazon.com. For this, all the relevant methods were explored and described, in order to check/choose which ones were the most appropriate.

For this evaluation it was chosen the APV method and multiple valuations. After the valuation a VAR analysis was performed and a comparison with the reports released from investment banks was done.

The target price achieved was 376.78 euros giving a BUY/ HOLD recommendation for investors, since at the time of the evaluation it surpassed the market price.

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Literature Review

Introduction

Valuation is the core of finance and in the exercise of valuating a company researchers have developed a large variety of models to better access a company's true value. These different models are built on the basis of different assumptions but still share some common characteristics and the majority can be used for any kind of valuation.

In this part of the dissertation there will be an analysis of most models, a brief explanation on how they work, and their relevance in the valuation of the company by presenting their advantages and problems. In order to avoid confusion and an ambiguous valuation, only the methods that are considered to be the more adequate for this company will be used.

As a starting point it should be noted that a valuation is always very subjective and depends largely on the evaluator. Two different evaluators will probably reach two different values for the same company, all depending on their assumptions and estimations.

This valuation will be performed on a listed company, which means that the objective is to set a value of the firm, with the corresponding recommendations. In order to do this it will be necessary to identify the company's main drivers and to forecast its development for the future.

Valuating Methods

In these last years, several models of evaluating companies were developed, and so the first step of an evaluator must be to choose the right methods to work with.

According to Damodaran, (2006)¹ we can consider, generally, five broader approaches to valuation (presented in table 1 below). The first, Relative Valuation, estimates the value of an asset by comparing it with others prices accordingly to common variables like earning, cash flows book value or sales. The second, Contingent Claim Valuation uses the option pricing model for the measure of an asset. The third, Liquidation and Accounting valuation is done taking into account the book values of a firm as a starting point and valuating the existing assets. The fourth, Excess Return Valuation, considers all the cash flows of a company and evaluates them separately, as excess returns or normal returns. The last approach, Discounted

¹ Damodaran, A. , 2006, Valuation Approaches and Metrics: A Survey of the Theory and Evidence

Cash Flow Valuation, relates the value of an asset to the present value of expected future cash flows.

Valuation methods

Relative valuation	Ex: EV/EBITDA, PER
Contingent claim valuation	Ex: Black Scholes
Liquidation and accounting valuation	Ex: book value, liquidation value
Excess return valuation	Ex: EVA
Discounted cash flow valuation	Ex:FCFF, FCFE, APV

Since the goal of the dissertation is to evaluate Amazon, the main emphasis will be on the most adequate methods that can be used.

Relative Valuation

Relative evaluation determines the value of an asset based on the value of similar assets on the market. This means that the company won't be valued based on what it has or how it performs but rather on how similar companies on the market have their comparable measures. We trust the market to assess the right price, or at least in average. These measures for comparison can be based on earnings, like PER or EV/EBITDA, operating cash flows, P/CF, or on equity book value, P/BV. Due to the fact that it doesn't take into account the intrinsic value of a company like other methods it may be reasonable to assume that it shouldn't be taken as a primary source of valuation. Some other disadvantages arise from what other firms can be compared to, and the inputs and the transparency of the multiple valuations since it is very susceptible to manipulation with changes on the peer group or in the multiple to select.

Still an important factor to take into account is presented in Damodaran (2002) that notes that "around 90% of all equity research valuations and 50% of acquisition valuations use some kind of relative valuation".² This reflects the great utility and relevance of this method which allows performing a valuation of a company in a much simpler manner and reflects the market fair value.

² Damodaran, A., 2002, Investment Valuation (Second Edition), John Wiley and Sons, New York

Comparable Firms

Since this valuation method relies only on comparison the main problem arises from the very beginning, - which companies can we compare with? According to Damodaran (2006) “a comparable firm can be defined as one with cash flows, growth potential, and risk similar to the firm being valued”. This definition is also supported by M. Goedhart, T. Koller and D. Wessels.³ Helping to face this problem Damodaran (2006)⁴ proposes that to compare the values of “similar” firms in the market, we need to standardize the values in some way by scaling them to a common variable. In general, values can be standardized relative to the earnings firms generate, to the book values or replacement values of the firms themselves, to the revenues that firms generate or to measures that are specific to firms in a sector. A solution to a good choice would be to select firms that have a similar long term growth rate and return on invested capital (ROIC).

A final note to take into account is about which data to use. As it is said in (Marc Goedhart, Timothy Koller, and David Wessels)⁵, “Both the principles of valuation and the empirical evidence lead us to recommend that multiples be based on forecast rather than historical profits.” So, if this forecast is not available, the valuation should be done based on the latest quarterly historical data. This has been proven by others studies, as is referred in the previous paper, and will be taken into account in the evaluation of Amazon.

Multiple Usage

To perform a relative evaluation we must choose which multiples to use first. For this matter some, like price to earnings ratios (PER), enterprise value based multiples (EV) and book values multiples (BV) are generally accepted and used in most of valuations.

The PER is one of the most used ratios but as is noted by Damodaran (2005)⁶ it is interesting that few of the analysts who choose it seem to consider the consequences of having large cash balances for this multiple. To adjust this problem the formula is altered to take into account the cash effects.

³ “The right role for multiples in valuation” by M. Goedhart, T. Koller and D. Wessels published by The Mckinsey Quartely;

⁴ Damodaran, A. , 2006, Valuation Approaches and Metrics: A Survey of the Theory and Evidence

⁵ Marc Goedhart, Timothy Koller, and David Wessels, The right role for multiples in valuation

⁶ Damodaran A., (2005), Dealing with Cash, Cross Holdings and Other Non-Operating Assets: Approaches and Implications

$$PER = \frac{Firm\ Value - cash}{Net\ income - interests\ from\ cash}$$

If this were not taken into account companies that carry large amounts of cash hold would have an artificial PER that would not reflect their true state and induce investors on inaccurate perception when comparing with the market. This would happen especially in the case of a growing firm versus a firm that isn't growing. This becomes a large problem when comparing companies within the same market that have a very different amount of cash.

The same rationale is applied to the price book ratio.

$$Price\ Book\ Ratio = \frac{Firm\ Value - cash}{Book\ Value\ of\ equity - cash}$$

The PER has some major flaws. (McKinsey & Company Inc., Tim Koller, Marc Goedhart, David Wessels 2010)⁷ According to these authors PER ratio is affected by the firm capital structure and not just its operating performance, and also since it is calculated after non-operating items and one-time gains or losses. This would mean that a non-operating loss, like a noncash write-off, would lower earnings and cause the PER to be artificially high. They also argue that instead of these ratios the EV to EBITA should be used for a better result although it can be acceptable to use EBITDA in the case that depreciations haven't a significant value.

The EV to EBITA ratio is similar to the PER but focuses on enterprise value rather than share price. It's formulated by the following formula.

$$\frac{EV}{EBITA} = \frac{(1 - T)(1 - \frac{g}{ROIC})}{WACC - g}$$

⁷ McKinsey & Company Inc., Tim Koller, Marc Goedhart, David Wessels, (2010), Valuation: Measuring and Managing the Value of Companies, 5th Edition

T – Taxes

g- Growth rate

WACC- weighted average cost of capital

ROIC- Return on invested capital

This formula takes into account four factors, the growth rate, return on invested capital, the operating tax rate, and cost of capital. Since the comparison is normally restricted to companies within the same market, the tax rate and cost of capital should be similar across all of them, improving the rate of comparison between them. The same authors defend that using EBITA is better than using EBIT or EBITDA. On the case of EBIT, since it doesn't include the value of amortizations, its values derive from past acquisitions, and will distort the multiple values. This is due to accounting reasons, mainly because companies that develop something internally won't consider the value of brands developed, while companies that acquire these companies will, and this would mean that depending on a company's decision, this ratio would be as reliable as using EBITA. The problem with EBITDA derives from the fact that depreciations effectively reduce the value of the existing assets and will reflect the future investment a company must do to replace it, so it should be taken into account when calculating a company's value even though it's more common and still acceptable on the case of depreciations not being a huge factor for a firm.

Contingent Claim Valuation

The Contingent Claim Valuation uses the notion of option into valuating a company. According to Schwartz E. (2013)⁸ "options are contingent decisions that provide opportunities to make these options, normally to continue investing or not, depending on the occurrence of events". These events can be of natural causes or financial markets valuations. This kind of valuation is commonly used to value projects or in the case of companies that have some special conditions like the ability to expand, to postpone, abandon, and to temporarily suspend the investment. It is also more commonly applied if the markets can quickly and easily value the underlying asset. A common application of this kind of valuation is in mining companies since there is the opportunity of closing the mine if the price of minerals goes down. This method

⁸ SCHWARTZ, E. (2013). THE REAL OPTIONS APPROACH TO VALUATION: CHALLENGES AND OPPORTUNITIES. *Latin American Journal Of Economics*, 50(2), 163-177. doi:10.7764/LAJE.50.2.168

doesn't fit a corporate business-like company like Amazon, as suspending for any given reason would be impossible. Due to the ambiguous notion of applying an option to a company it gets extremely difficult to apply this method to the valuation of a company. Only a manager would know if there is an opportunity to do one option so it's extremely difficult to be aware this option would even exist. Adding to this, there is the assessment of volatility that is a very arbitrary decision and would give opportunity to manipulate results. For these reasons it is more recommended to use other methods.

Liquidation and Accounting Valuation

This valuation proposes that the value of a business is the sum of its individual assets. From this mind set all the company's assets should be valued and together they would give us the total value of a company.

This approach has several methods, the first being the book value based valuation, where the company is valued based on its income statements and balance sheets. In this approach questions arise since the market value and book value can be quite different. A conclusion we can take for this method is presented in Damodaran, (2006)⁹ "For mature firms with predominantly fixed assets, little or no growth opportunities and no potential for excess returns, the book value of the assets may yield a reasonable measure of the true value of these firms. For firms with significant growth opportunities in businesses where they can generate excess returns, book values will be very different from true value."

Another method is to perform a fair value instead of a book value. While this might solve the problem of differentiation from the market value it may lead to a manipulation on the valuation. So its fairness and credibility might be questionable.

The last method is the liquidation valuation. In this method assets are valued on the assumption of being sold right away. This method is similar in terms of value to the discounted cash flow approach in terms of valuation, the big difference is that due to the urgency on selling the assets a big discount may be done and the real value may get underpriced. A conclusion of the use of this method is presented by Damodaran (2006), "liquidation valuation is likely to yield more realistic estimates of value for firms that are distressed, where the going concern assumption underlying conventional discounted cash flow valuation is clearly violated.

⁹ Damodaran, A. , 2006, Valuation Approaches and Metrics: A Survey of the Theory and Evidence

For healthy firms with significant growth opportunities, it will provide estimates of value that are far too conservative.”

Since these methods don't apply to the Amazon case they will be excluded in the valuation process.

Excess Return Valuation

In this approach to valuation, we separate cash flows into two categories: excess return cash flow and normal return cash flow. All the earnings that go along the cost of capital are considered normal and all those that differ are considered excess returns. This also means that excess returns may be either positive or negative. Due to this consideration a company that has positive excess returns will be valued at higher values than the book value and the inverse for negative excess. Within this logic a project only adds value to a company if its return on equity exceeds the cost of capital no matter how much profitable it may seem on numbers.

The most commonly model used for this valuation is the economic value added (EVA) and it will be the only explored in this paper. This method can be computed by the following formula, described and further explained in Damodaran (2006),

$$\text{Firm Value} = \text{Capital invested} + NPV(\text{assets in place}) + NPV(\text{future projects})$$

According to this formula a firm can be divided in three components, the capital invested on assets, its present economic value added and the expected present value of future investments. Like Damodaran (2006) explains, the excess model and the discounted cash flows converge to a similar value when we are consistent with growth, and reinvestment is simple. Several studies have been conducted about this convergence like in Fernandez (2002)¹⁰ and there is proof that it exists. The difference that is usually verified is attributed to the different assumptions and estimations that have to be done on both models. Studies fail to prove which of the models is better, rather that both are quite similar. So it doesn't make sense to use both methods and for this valuation it will be opted for the DCF method.

¹⁰ Fernandez, P., 2002, Three Residual Income Valuation Models and Discounted Cash Flow Valuation, Working Paper, IESE Business School

Discounted Cash Flows Valuation

The discounted valuation method is often considered the basis for all other methods and it is generally accepted as the best method to apply, despite the several assumptions that have to be made.

The first base for this valuation is that the company will keep having cash flows and it will continue its operation on a perpetual base or at least in a determined amount of time and it can't stop operating before that time. With this in mind, in a more general approach, one can say that this method works by estimating the future cash flows of a company and discount them at a certain rate, which will be constant along time, to get them to their present value and all summed up will give the value of the company.

The big difference in all the methods is the rate that is considered to bring the cash flows to the present value. With this as a base for the valuation, according to Ian Cooper Kjell Nyborg (2006)¹¹ there are three relevant cash flows and three discount rates.

“The relevant cash flows are:

Operating free cash flow (FCF): Free cash flow after tax, assuming that the firm is financed entirely with equity.

Equity free cash flow (ECF): Free cash flow available for equity holders.

Capital cash flow (CCF): Free cash flow available to the combination of debt and equity holders.”

The discount rates being the cost of equity (K_e), the cost of debt (K_d), the unlevered cost of capital (k_u) and the weighted average cost of capital (WACC)

With all these elements we are able to establish all the four relevant methods of this type of valuation. These four methods are:

FCFF or WACC method: Discounting the FCF at WACC to have the value of the leveraged firm, taking the debt out after.

FCFE method: Discounting the ECF at K_e that gives the value of the equity.

APV method: Discounting the FCF at K_u that gives the value of the unlevered firm, adding after the present value of the tax shields and taking debt.

¹¹ Ian Cooper, Kjell Nyborg 2006, Consistent methods of valuing companies by DCF: Methods and assumptions

CCF method: Discounting CCF at K_u to get the value of the levered firm and taking the debt out after.

Methods for DCF

From the four methods described before, we can divide them into two groups: the APV and all the others. This is done because all, except the APV method, are computed in a very similar way, changing only the discount rate.

Starting by the capital cash flow method (CCF) and as it is described in Richard S. Ruback (2000), this method is equivalent to the free cash flow to the firm (FCFF) method and very close to the adjusted present value method. In the case of the FCFF the equivalence happens due to the interest tax shields being included in the cash flows. The only advantage of this method is that it is easier to apply if the level of debt changed and consequently is less prone to errors. Since there is equivalence with the FCFF method only one method will be used, and it will be opted by the FCFF one.

To calculate the FCFF the following formula can be used:

$$FCFF = Ebit(1 - Tax\ rate) + Depreciations - Capital\ expenditures - \nabla Working\ capital$$

Second, the FCFE method consists in evaluating the equity stake of a company, and according to Damodaran (2002)¹² its computed by “discounting the future cash flow to the equity (FCFE), (i.e., the residual cash flows after meeting all expenses, reinvestment needs, tax obligations, and interest and principal payments) at the cost of equity (i.e., the rate of return required by equity investors in the firm)”.

$$Value\ of\ Equity = \sum_{t=1}^{t=n} \frac{FCFE}{(1 + Ke)^t}$$

N= Life Time of Asset

FCFE= Free Cash Flow to the Equity

Ke= Cost of Equity

¹² Damodaran, A., 2002, Investment Valuation (Second Edition), John Wiley and Sons, New York

Third there is the FCFF, method where the entire business is valued and not only the equity detained by the company. According to Damodaran (2002) the value of the firm is obtained by “discounting expected cash flows to the firm (i.e., the residual cash flows after meeting all operating expenses, reinvestment needs, and taxes, but prior to any payments to either debt or equity holders) at the weighted average cost of capital (WACC), which is the cost of the different components of financing used by the firm, weighted by their market value proportions”.

$$Value\ of\ Firm = \sum_{t=1}^{t=n} \frac{FCFF}{(1 + WAAC)^t}$$

N= Life Time of Asset

FCFF= Free Cash Flow to the Firm

WACC= Weighted Average Cost of Capital

Last, there is the APV method, where each part of the company is valuated separately, starting by computing the value of the company like it was entirely financed with equity and then discounting all the expected future FCFF at the unlevered cost of capital (Ku), adding after the present value of the tax shields (PVTS) and subtracting the present value of the costs of bankruptcy.

$$Value\ of\ Firm = \sum_{t=1}^{t=n} \frac{FCFF}{(1 + Ku)^t} + PVTS + PV\ bankruptcy\ cost$$

Next, it follows the computation of the interest tax shield where there is still a big discussion on what the best and most accurate formula should be. In essence the differences arise since the first model, the Modigliani and Miller, would simply assume that this value was the value of the debt times the taxes. This was further improved by Milles-Ezzell model that included the value of the interests for the calculation and discounted the value at the unlevered cost of equity. This is where the disagreement arises, due to the discount rate and with the appearance of the APV model it was proposed that the value should be discounted at the cost of debt. Depending on the assumptions made both approaches of discounted can be accepted. This explanation and analysis is further developed in Cooper I., Nyborg K. (2006).¹³

For the computation and since the model used will be the APV, the following formula will be used:

¹³ Ian Cooper, Kjell Nyborg, 2006 Consistent methods of valuing companies by DCF: Methods and assumptions

$$PVTS = \sum_{t=1}^{t=n} \frac{Tax\ rate_t * Interest\ rate_t * Debt}{(1 + Kd - g)^t}$$

The inclusion of the growth in the formula is explained in Cooper I., Nyborg K. (2006) where they point out that, "This grows at the rate g , as does the entire firm. Future debt levels and future tax savings are assumed to be proportional to the value of the operations of the firm."

To compute the present value of the bankruptcy costs it is needed to estimate the default risk level of a firm and its expected costs.

$$PV\ Bankruptcy\ costs = (Prob.\ Bankruptcy) * (PV\ Bankruptcy\ costs)$$

Accordingly to Damodaran (2006)¹⁴, "this step of the adjusted present value approach poses the most significant estimation problem, since neither the probability of bankruptcy nor the bankruptcy cost can be estimated directly". In the same paper it is proposed two ways to get the probability of default, estimate a bond rating and the other from a statistical approach to estimate the default probability based on the level of debt. As for the costs of bankruptcy they can be estimated from studies that have researched the magnitude of these costs in actual bankruptcies. A good solution for this is presented on Davydenko, Sergei A., et al., 2012¹⁵, where the authors present a study on the values of past bankruptcies giving averages that can be followed, described amongst industries and on the type of operation, (bankruptcy or renegotiation).

FCFF VS APV

To use any of these methods it is required to make some basic assumptions. These assumptions are used to determine the debt policy, and in general terms it can be considered that the debt can be constant and perpetual or arbitrary and non-constant. These assumptions are explained on Damodaran (2006) and in the same paper he refers which method should be used under each one. In a more broad evaluation we can say that the FCFF method should be used when the debt ratio remains constant and the APV for the cases where the debt changes, even though the APV model might be used in all circumstance. This recommendation is made due to the fact that the FCFF method is simpler to calculate and with a constant debt it can be

¹⁴ Damodaran, A. , 2006, Valuation Approaches and Metrics: A Survey of the Theory and Evidence

¹⁵ SergeiA. Davydenko, IlyaA. Strebulaev, Xiaofei Zhao, 2012 , A Market-Based Study of the Cost of Default

perfectly applied. This simplification that the FCFE has derives from the problem of calculating the indirect costs of bankruptcy for the APV, which becomes a very subjective value that is hard to guess if it corresponds to a true one.

Discount Rates and Betas

In order to implement any of the valuation methods it's required to have discount rates. Accordingly to Damodaran (2006), usually there are two possible starting points for estimating these. One is to observe the equity beta, debt required return, and leverage of the firm being valued. The other is to use information from other companies in the industry.

When the firm's own characteristics are used and the leverage policy remains constant, the WACC may be calculated directly and it is computed with the following formula.

$$WACC = \left(\frac{D}{D + E} \right) * Kd * (1 - T) + \left(\frac{E}{D + E} \right) * Ke$$

D- Debt

E- Equity

Kd- Cost of Debt

T-Effective Corporate Tax Rate

Ke- Cost of Equity

In order to compute the cost of equity, that is the return that the investors demand to invest in the company, we can use the CAPM model approach that is given by the following expression:

$$Ke = Rf + \beta L(Rm - Rf)$$

Rf- Risk Free Rate

(Rm-RF) - Market Risk Premium

BL- Company levered Beta

For these two rates some precautions should be taken when calculating them, as it is described on Fernández (2004)¹⁶ where the author notes a series of common mistakes to be avoided.

The cost of debt is the rate to which the company can borrow money. It is normally measured after taxes, due to interest being tax deductible. This cost reflects both the default risk and the level of interest rates in the market.

The simplest approach is to access the market price of the bond in conjunction with its coupon and maturity that can both be used to compute a yield that can serve as a cost of debt. This is only possible for traded firms that are liquid and frequently traded.

To compute this rate for companies that aren't traded, Damodaran (2012) presents two solutions. The first comes from borrowing history and as it is explained "by looking at the most recent borrowings made by a firm, we can get a sense of the types of default spreads being charged the firm and use these spreads to come up with a cost of debt."

The second approach is to estimate a synthetic rating; this is to assign a rating to a company based on its financial ratios. In this method what is done is to check the company's interest coverage ratio and based on its market capitalization, use the corresponding spread to add to the risk free rate and arrive at the pretax cost of debt.

$$\text{Interest coverage ratio} = \frac{\text{Ebit}}{\text{Interest Expenses}}$$

$$\text{Aftertax Cost of Debt} = \text{Pretax Cost of Debt} * (1 - \text{Tax Rate})$$

To compute the risk free rate and the market risk premium can be taken from evaluating the market in which the company is, so that they are both in the same currency. A good explanation of what is risk free and if it really exists is debated in Damodaran (2010)¹⁷.

To calculate the risk free rate the best option is to look into the country's central bank treasury obligations since it's considered the most riskless asset available, also should be used more recent data as it is supported by Fernández (2004). As for the market risk premium, it can be defined as what the investors demand for the extra risk that they take on top of the riskless rate. This rate can be computed by analyzing historical premium earned of stocks over default-free securities (normally treasury obligations) over long time periods since they normally don't change much within the same industry over time. This is valued if the right period of time is

¹⁶ Fernández P. , (2004), 80 common errors in company valuation

¹⁷ Damodaran A. , (2010), Into the Abyss: What if nothing is risk free?

well and properly defined, and if the risk free security chosen is from a long term treasury bill of the country where the company is located.

The beta, accordingly to the CAPM model, is the risk that an investment adds to a portfolio. In order to estimate them, according to Damodaran (2002)¹⁸ there are three ways: the first is to use historical data of market prices, the second is to estimate it from the fundamental characteristics of the investment, and third from accounting data. In this paper it will only be presented the first approach, since it is the most relevant and common one.

The historical beta is computed by performing a regression of the company stock returns (R_i) against returns on a market index (R_m) such as the S&P 500. It's computed by the following formulas.

$$R_i = a + b R_m$$

Where, a = intercept from the regression

b= slope of the regression

The slope of the regression corresponds to the company's beta (β_i) and is computed by the following expression:

$$\beta_i = \frac{\text{Covariance}(R_i, R_m)}{\text{Variance}(R_m)}$$

As for the time period of the measurement of the returns, Koller, Goedhart, Wessels(2005a)¹⁹ recommends using monthly returns, in order to avoid systematic biases associated with shorter periods of time.

Another approach to compute that is simpler and commonly used is to use a beta provided by an estimation service like S&P, Merrill Lynch, Barra or Bloomberg. They estimate them and then adjust to reflect future estimates of risk. To this approach and as it is suggested by

¹⁸ Damodaran, A., 2002, Investment Valuation (Second Edition), John Wiley and Sons, New York

¹⁹ McKinsey & Company Inc., Tim Koller, Marc Goedhart, David Wessels, (2010), Valuation: Measuring and Managing the Value of Companies, 5th Edition

Damodaran²⁰ the time frame should try to include the maximum number of data and it is suggested a monthly period over 3 years' time frame.

As for the unlevered beta that needs to be used in the APV method, its formula to compute B_u it's computed by:

$$B_L = B_u[(1 - t) * (D/E)]$$

To better understand the difference between the levered and unlevered betas Damodaran (2012) gives the following explanation "the unlevered beta of a firm is determined by the nature of its products and services (cyclicality, discretionary nature) and its operating leverage. It is often also referred to as the asset beta, since it is determined by the assets owned by the firm. Thus, the levered beta, which is also the beta for an equity investment in a firm, is determined both by the riskiness of the business it operates in and by the amount of financial leverage risk it has taken on."

Non-equity claims and other non-operating items

Some final precautions should be taken in order to reach a company's equity and they are to subtract non-equity claims like debt, unfunded pension liabilities and minority interests.

The debt value, either book or market, is subtracted directly from the EV.

"Pensions and retirement liabilities coming from employees plans depends on how the company measures them. If it's defined as a contribution basis, there isn't any valuation effect but if it defined as a benefit basis the resulting surplus should be added to the EV or subtracted if it's a deficit" (Damodaran 2002).

As for minority interests and subsidiaries they should be valued, if possible, by performing a separate valuation, either by a DCF valuation or multiples, and then added to the companies EV to determine the total equity value.

Finally, excess cash and marketable securities should also be accounted separately from the DCF valuation by using their most recent value.

²⁰ Damodaran A., Estimating Risk Parameters

Terminal Value

When evaluating a company, it is usually assumed that either a company has a defined life period or it will continue to operate indefinitely and in that case it is used perpetuity to assess its value. The perpetuity assumes that from a certain point onwards the company will continue to grow at a stable rate. This terminal value can be assessed by the following formula:

$$\text{Terminal Value} = \frac{FCFF_{(t+1)}}{\text{Discount rate}_{(t+1)} - \text{stable growth rate}}$$

The stable growth rate should be constrained by the growth rate of the economy or the industry on which the company operates, since in perpetuity a company can't expect to grow more than both. So after computing its value should be matched against the expected growth rate of the economy and if it surpasses it means that the company is still in a growth phase, which is not sustainable for perpetuity. According to Damodaran (2002) can be calculated by:

$$\text{Stable growth rate} = \text{Reinvestment rate} * \text{Return on capital}$$

$$\text{Reinvestment rate} = \frac{\text{CAPEX} - \text{depreciation} + \text{investment on working capital}}{\text{EBIT} * (1 - \text{Tax rate})}$$

$$\text{Return on capital} = \frac{\text{EBIT} * (1 - \text{Tax rate})}{\text{Capital Invested}}$$

Value at Risk (VAR)

To conclude the evaluation it will be performed a value at risk analysis. As Damodaran (2007)²¹ describes “In its most general form, the Value at Risk measures the potential loss in value of a risky asset or portfolio over a defined period for a given confidence interval.” So this analysis will give a range where the final value is expected to move within.

In the same paper it is described the several methods that can be used to perform this analysis. They are the Variance- Covariance method, Historical Simulation and Monte Carlo Simulation.

In this dissertation and due to the reasons described in the paper the historical simulation will be used.

This method consists on getting the returns of the stock prices; in this case it is over the daily prices over the course of 1 year, and then compute a histogram in order to achieve a confidence interval.

This method will afterwards be improved by performing a hybrid approach, which is also referred in the paper as an improvement to the method. What is done within this method is giving the most recent date a more relevant weight since it more accurately reflect the company current value.

²¹ Damodaran A. 2007, Value at Risk

Amazon company valuation

After the review of the current literature about the process of a company's valuation this section will proceed towards the goal of the dissertation: evaluating and setting a price for Amazon Company.

However, in order to reach that goal several intermediary steps have to be taken. Firstly, an explanation of what Amazon is, its industry, its core business and relevant uniqueness. This will be done to give a better context on how the company is doing and what its main challenges and opportunities are. It will also serve to give a clear notion on what the core values and the company's goals are.

Secondly there will be an in depth company overview. In this part there will be an analysis of the company's results in order to perform the valuation. All the company's relevant accounts for earnings and cash flows like its revenues, operating costs, debt structure, capital expenditures, and several other relevant informations will be reviewed. Along this overview the assumptions taken for the valuation process will be presented and explained.

Thirdly, there will be Amazon's valuation, with the corresponding target price and recommendations. This evaluation will be performed with the usage of the APV and multiples methods.

Finally, there will be a comparison between this evaluation and those done by investment banks, namely JP Morgan and BCG.

Industry Overview

In order to evaluate Amazon a clear definition of what the business of the company is should be taken into account and the sectors in which it operates. This will allow having some insights on the macroeconomic aspects of the market and also some data on the historical and expected future of the sector, since this will influence Amazon directly.

Since Amazon operates in various countries, data from the US and European markets will be presented, being the US market the most relevant one and where the company has most of its assets allocated.

The Online Retailing Industry

Amazon operates mainly in the online retailing business, a relative new market that was born with the appearance and mass diffusion of the internet over the world. This is a high growing market (tables presented on appendix 1) that is expected to continue to grow in the future both in the US and European markets, with the new rise in Chinese market making it an appealing one to be in. Adding to the large size of the industry other factors make it appealing to be in, like the difficulty for new companies to challenge the current ones and the pressure it may have on suppliers and their prices. (Refer to Appendix 3 for the industry Porter 5 Forces analysis)

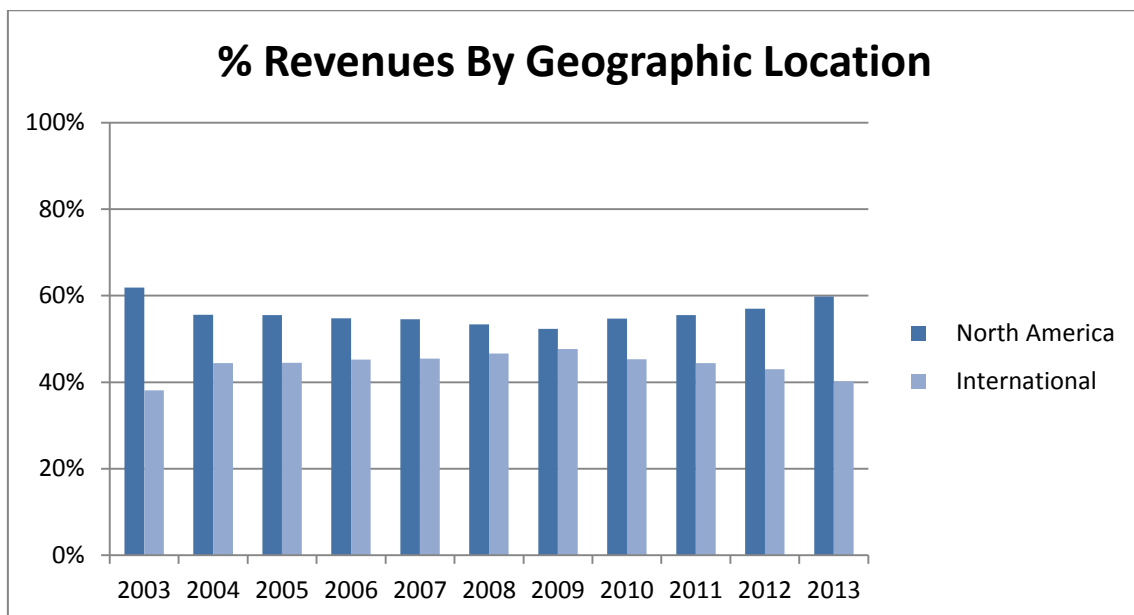
This business has the particularity of most the companies not having any physical store and all business being conducted by the websites, where all the products are listed for buyers to select and buy with a post-delivery to their required address. In this business we can separate three ways the companies operate, one where they have their own stock of products, selling it directly to the customer; second where they simply act as an intermediary for other retailers to sell their products in exchange for a small cut on the sale (these retailers usually composed by small business); and a final one where the companies operate as a marketplace, the most notorious example being EBay. Within this model the company sells products held by people, many already used, with the particularity that all the shipping and advertising being done by the seller and the company takes a small cut on the sale.

Amazon Overview

Amazon Company is the world leader internet retailer. Founded by Jeff Bezes (considered in 2014 as “world’s best performing CEO” by Harvard business review) in 1994 on the US as an online book retailer, later it expanded to a large variety of products as it is known nowadays. The company is driven towards a long term orientation goal by constant innovations, shifting its investments and changing substantially from its core business of selling books. This as increased customer value and with this the company has grown to become the world largest internet retailer. (Refer to Appendix 4 for a SWOT analysis)

It is present on the US, Canada, several European countries like the UK, France and Germany and in Japan, China and India. As much as it seems a much diversified company as can be seen in table 2 below the main source of revenues still comes from North America, a tendency that has been increasing since 2009. This reflects the importance and focus on this market.

Finally, as a driver for the company’s revenues it will be considered that it has a strong positive correlation with the world GDP (presented in appendix 3) of 0.897, but also and more relevant with the industry growth, presented on appendix 1.



Revenues

Performing an analysis of what has been and is estimated for amazon we can easily identify the biggest driver of the company, growth. As it is showed in Table 3, the company has been growing sustainably by continued, with its revenues growing more than 20% each year. The future perspectives go along the same path although the growth values will be lower. This growth will be the main source of success for the company. The growth has been estimated in 2014 by the value obtained in the third quarterly report; the 2015 value was assumed to decrease 3%, accounting for the increase in competition and no new market expansion that will result in lower growth opportunities; 2016 was assumed to decrease by 3% and 2017-8 by 2% going along the decrease seen in the last years. Table 5 presents the past as estimated future revenues by types of products. This was done considering the percentages to be similar to what was been and so an average was done with the past five years. This last table shows the rise in importance of electronics and decrease in media products, which can indicate the key for the future.

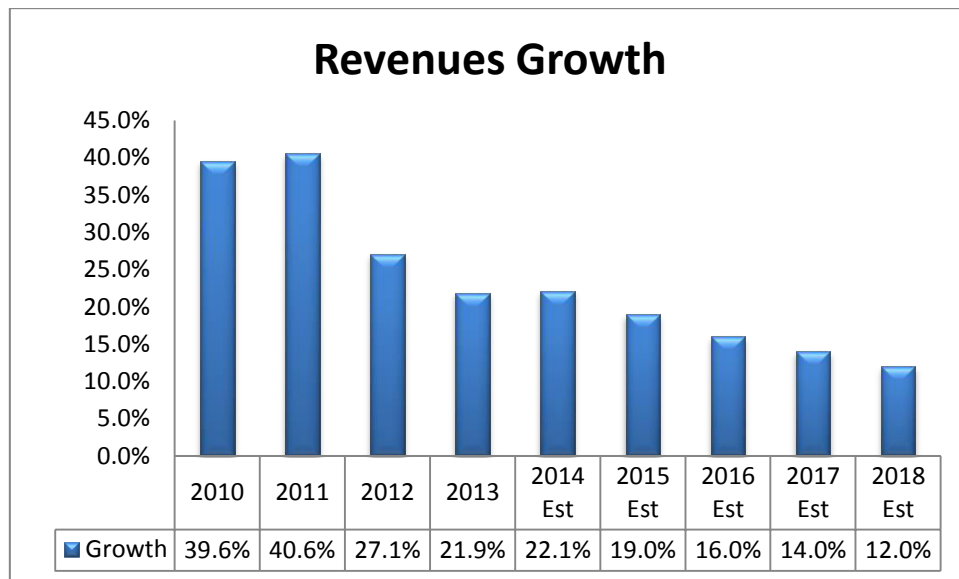


Table 3- Amazon revenues growth

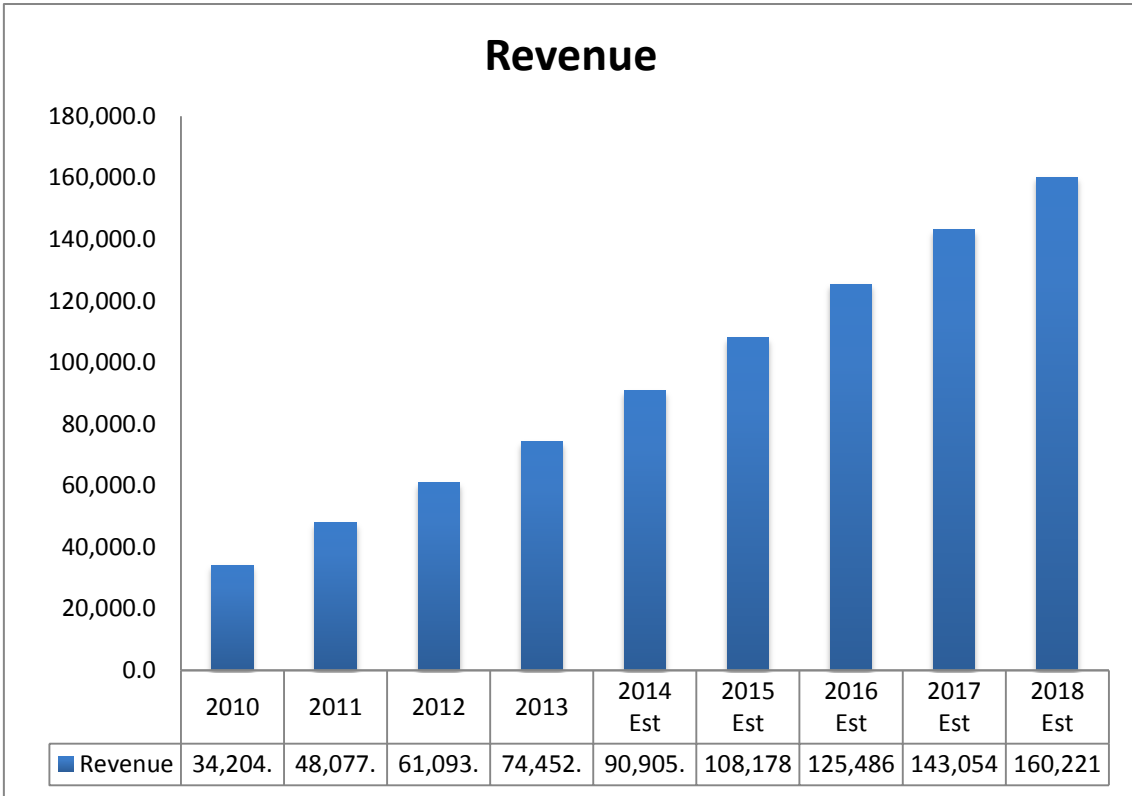


Table 4- Amazon Revenues

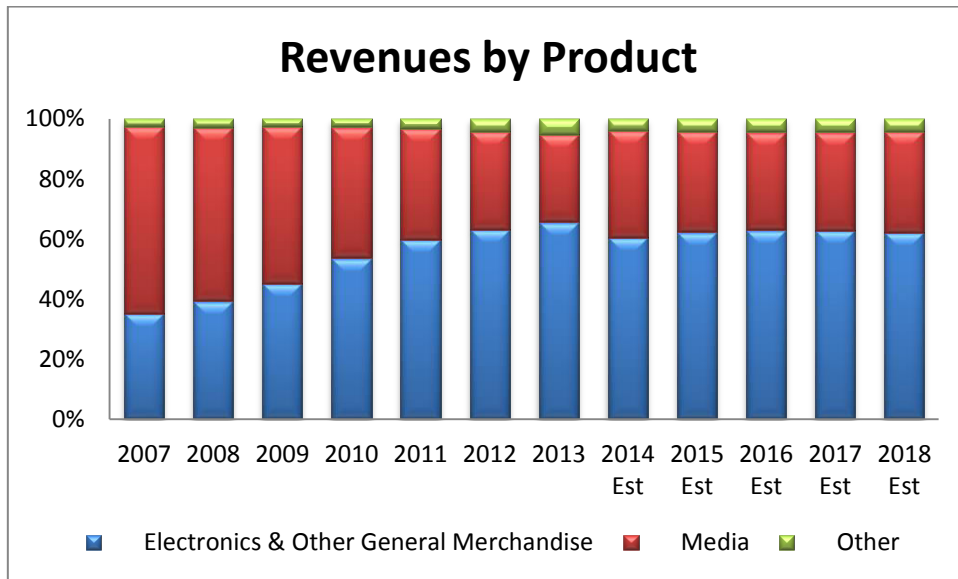


Table 5- Revenues by Product

Operating costs

There are two kinds of operating costs: the cost of revenues, or sales that as the company describes “Cost of sales consists of the purchase price of consumer products and digital content inbound and outbound shipping charges, and packaging supplies. Shipping charges to receive products from our suppliers are included in our inventory, and recognized as cost of sales upon sale of products to our customers.” These costs contain the biggest amount of operating costs and were estimated by an average of what the percentage has been towards the total amount of revenues, which is its main driver and has been constant over the years (table 6). As for the estimation it was taken into assumption that the values will maintain around 71% with some fluctuations over the years, assuming this will be the new target value for the company as it happened during 2007-2011 period. Of notice that the estimation in the cost reduction is small due to the company policy of high growth vs margins increase and by looking at previous years costs it is expected that they are maintained at a similar level as it has been.

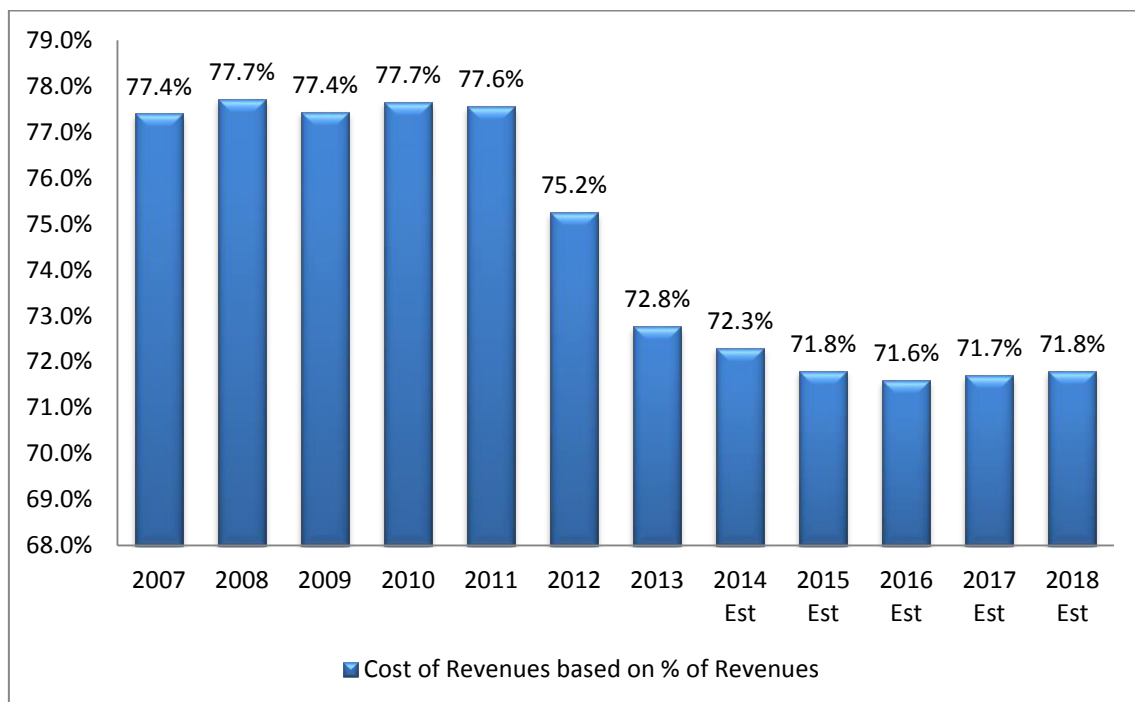


Table 6- Cost of Revenues by % of Revenues

The second operating costs are operating expenses, according to Amazon 2013 report, they consist of marketing expenses, fulfillments (transaction costs), technology and content (technology infrastructure, product expansion and others), general and administrative and other expenses.

These costs are estimated based on the percentage they represent towards the revenues, which is the indicator provided by the annual report, as is shown in table 7, and the estimation is based on the average of the last three years. The option to reduce the number of years comes from the fact that the company has expanded much more in the recent years and those past values don't reflect the expenses that the company will face in the future. It is true that there is a strong assumption and that not all of these costs are driven by the company's sales but as the company doesn't provide a clear policy of its drivers it is considered that the proportion of each of the costs is to remain the average of the past. These results are presented in table 8 below.

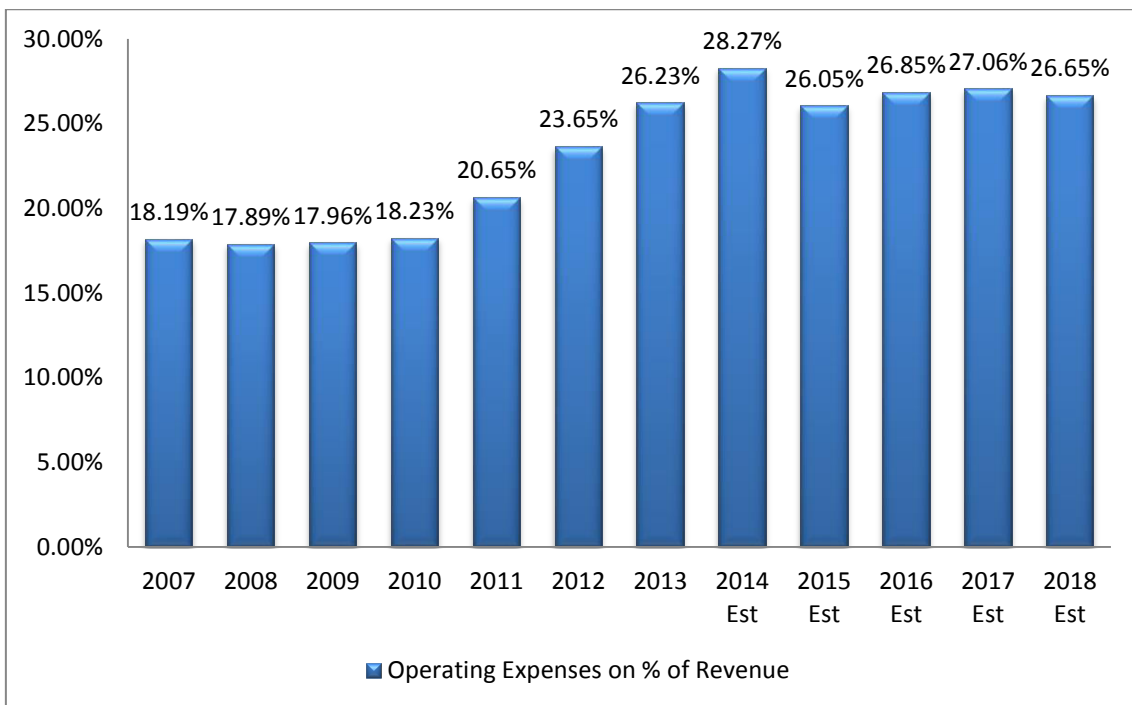


Table 7- Operating Expenses as % of Revenues

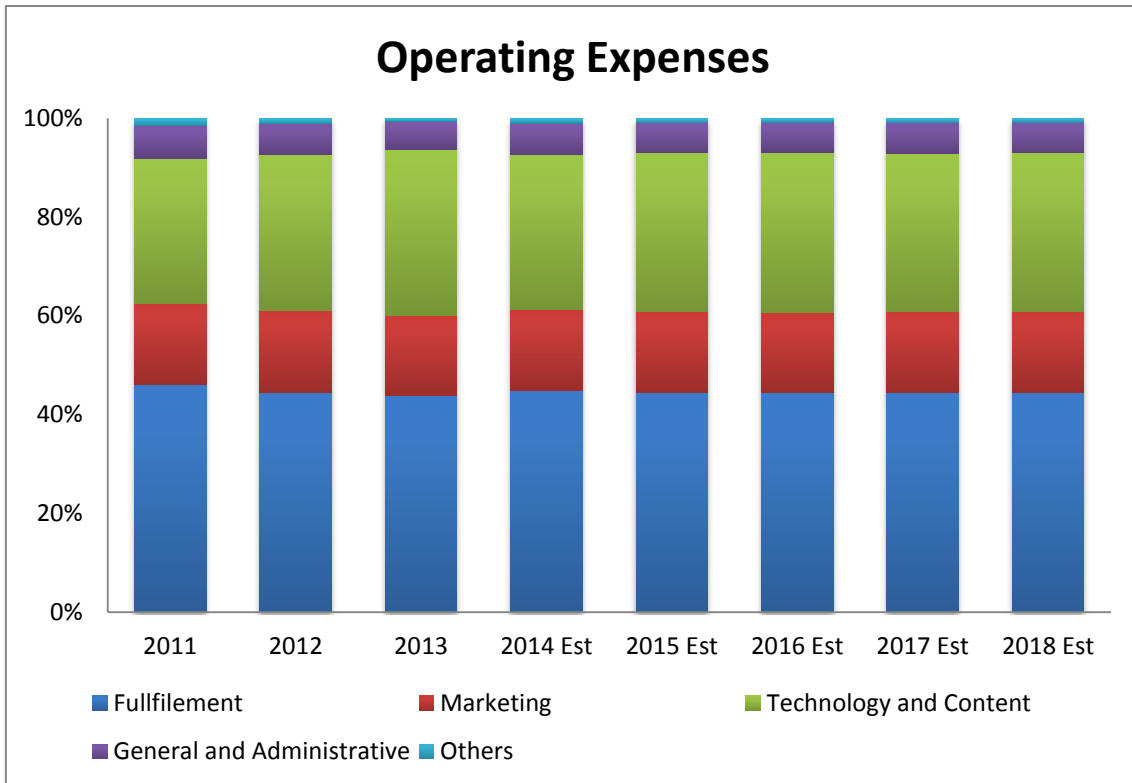


Table 8- Operating Expenses

Capital Expenditures

Amazon’s capital expenditures are related to its operating activities, consisting of additional capacity to support operations and investments in technology infrastructure. According to Amazon’s 2013 report the growth in capex is expected to continue following the expansion of the company. For this reason the assumptions made to estimate the following years were done by taking into account the percentage it corresponded in the past to the net fixed assets value, which has been stable around 23%. The growth and capex values are showed in tables 9 and 10 below.

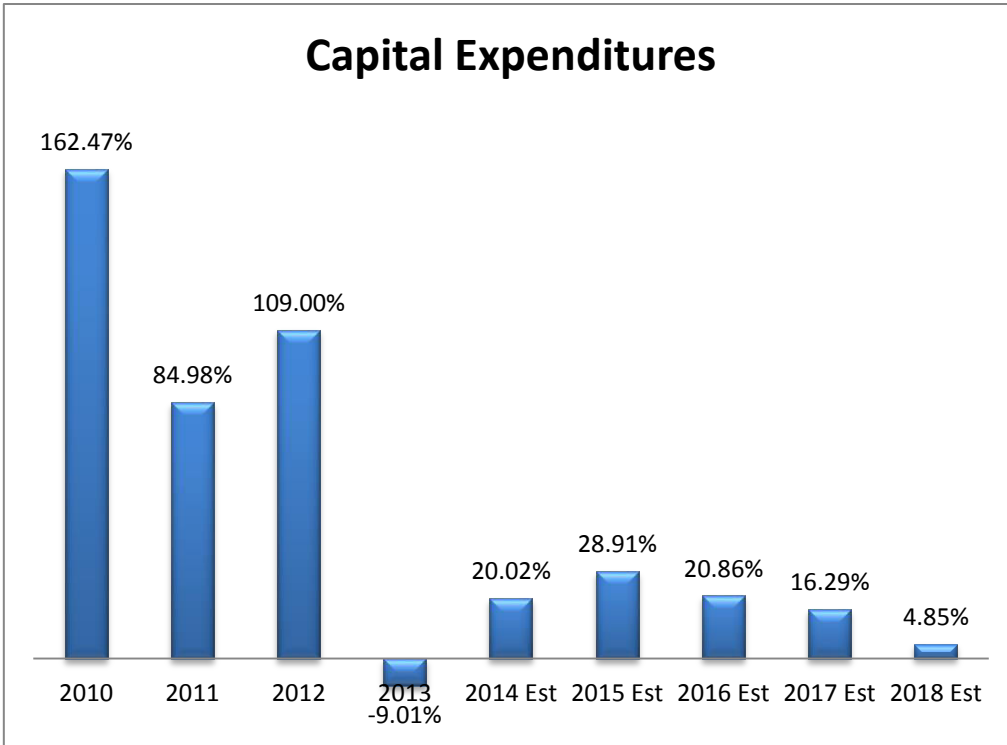


Table 9- Capex Growth

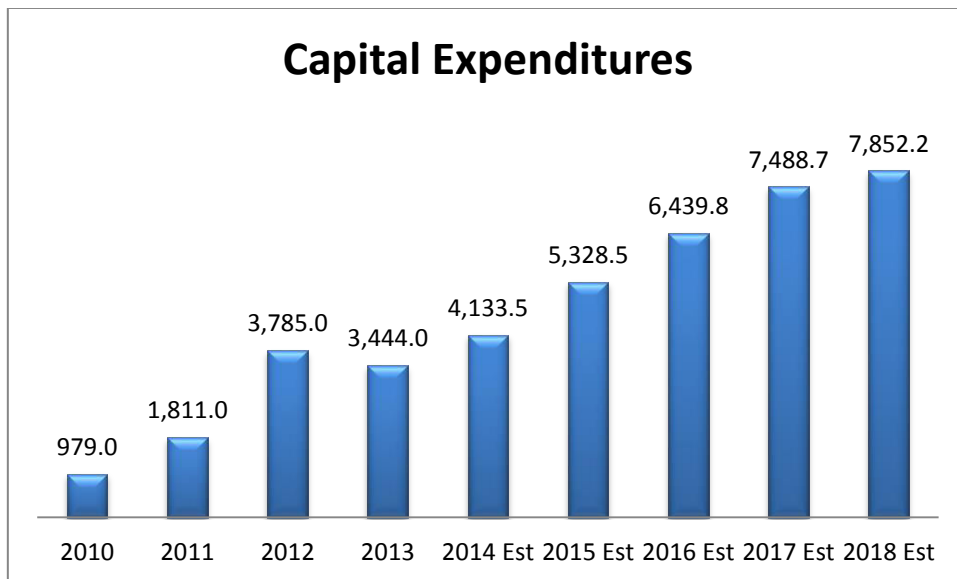


Table 10- Capex Values

Net working Capital

The Net Working Capital results from the difference between current assets (except short term investment), and current liabilities (except short term debt). The cash is included into the calculation of this value due to the company policy of maintaining a cash balance to offset potential unexpected costs. As it is explained by Amazon 2013 report “working capital at any specific point in time is subject to many variables, including seasonality, inventory management and category expansion, the timing of cash receipts and payments, vendor payment terms, and fluctuations in foreign exchange rates.”

To explain the negative results one has to notice that this is a strategy of the company that uses supplier credit as a capital source in order to grow. The estimation for the following years was done taking into account Damodaran (2002) considerations, where it is said that these values shouldn't be expected to grow but to be maintained or go towards 0. For the estimation itself the values were taken as a percentage of the revenues, decreasing in percentage every year. The value from 2014 is taken from the 3rd quarterly report while 2015 values is done with the average of the last years while the following increase 1% per year. The results are presented on table 11 below and on appendix 6.

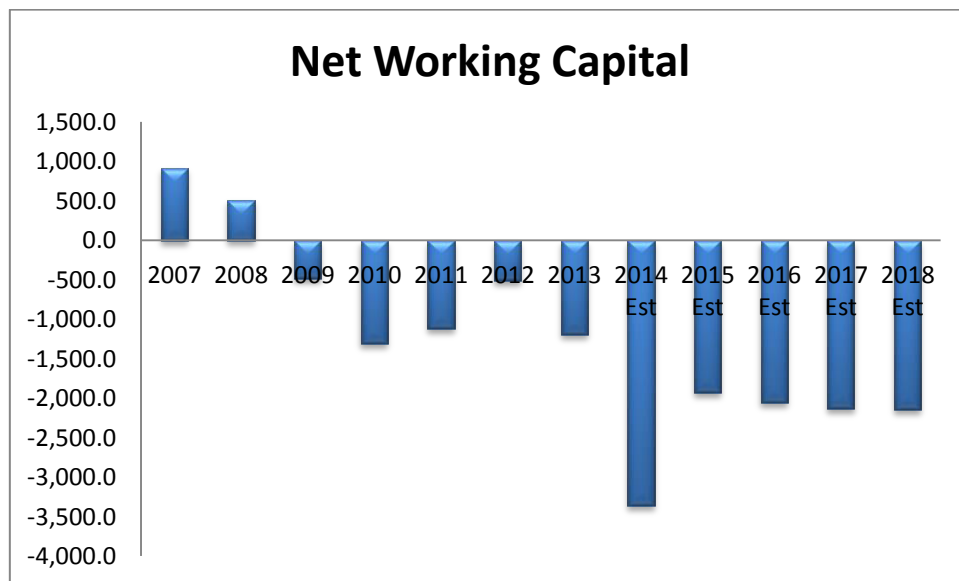


Table 11- Net Working Capital

Depreciations

The depreciations of the company are recorded as a straight line basis for the life of the assets and as such will move along with the growth of the company. The estimation for this value was done by computing how much these values did correspond to the fixed assets of the company in the last years. Then assuming the average, 23%, the next years were estimated based on the continuation of this proportion.

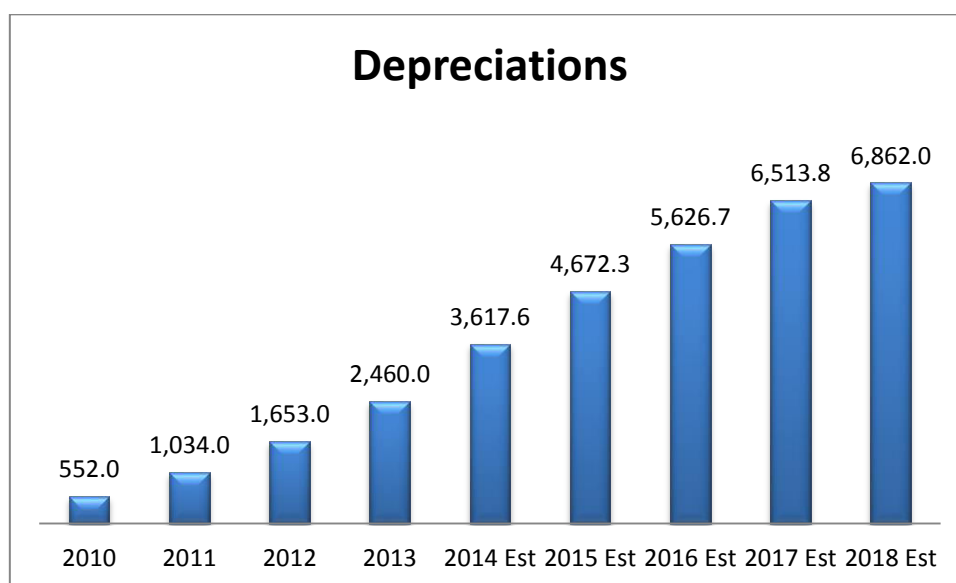


Table 12- Depreciations

Debt and Interests Expenses

Looking into the company Debt structure it is possible to see the D/E ratio, presented in table 13, has been increasing and according to estimations will continue to do so, especially due to the company negative results of 2014 that will force the company to increase its debt values. With this structure the valuation method that is best fitting is the APV because it accounts for the changes in the ratio.

The interested expenses, presented on table 14, are calculated based on the values presented in the annual report of 2013, where the company reveals the amount of interests that will be paid in the next years. Adding to this value is the amount of long term borrowings that the company is estimated to have, described in 2013 annual report, paying interests at the current average rate of 2.66%, the market value of the debt and 5.95% for current and other long term debt, excluding treasury obligation notes. These new borrowings are considered to be paid in 5 years. To reach the values of the borrowings, the value of 2014 was taken directly from the 2014 3Q report of Amazon and the following years have been done as an average of 2013 and

2014 values. This was done assuming the company to maintain some investment in order to grow but as a more reasonable measure. No major investments were considered since the company hasn't revealed any plans for doing so after the Twitch deal.

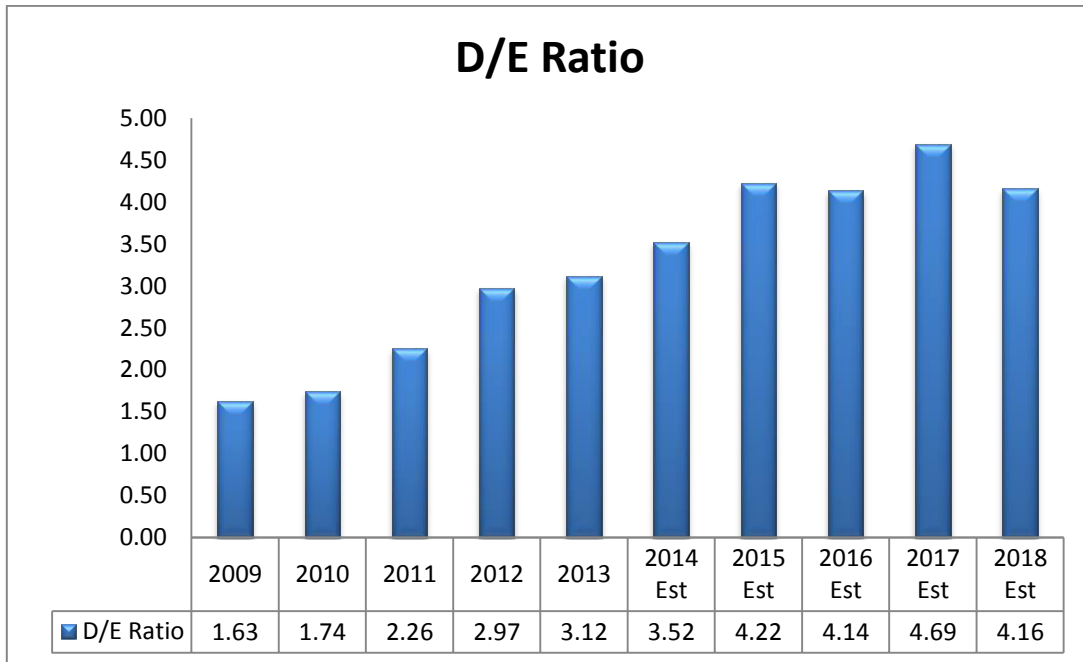


Table 13- D/E Ratio

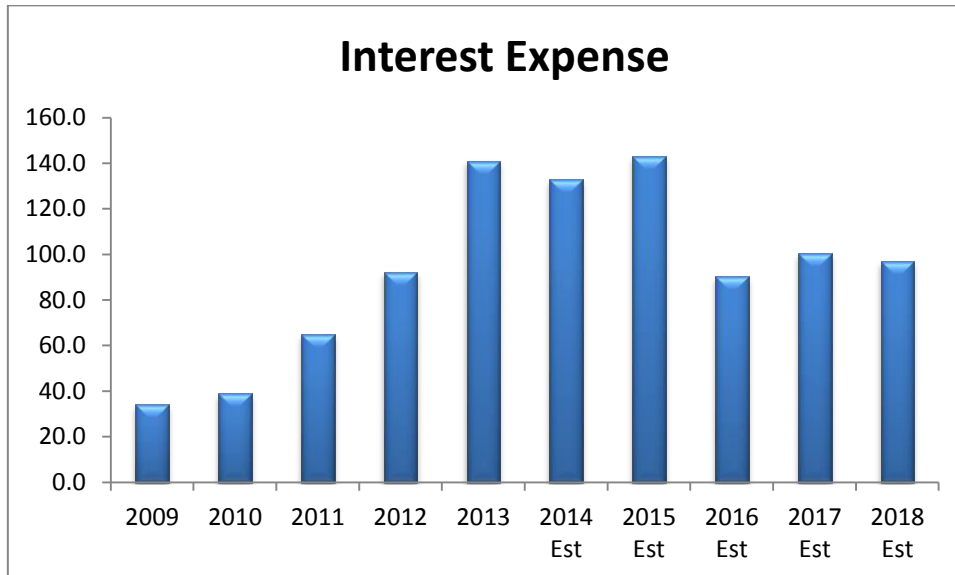


Table 14- Interest Expenses

Inventories, Accounts Payable and Receivable

For the calculation of these balance sheet items it was assumed that they will continue to follow the tendency of corresponding to a percentage of the revenues. This percentage calculation was done by the average of what the last three years have been, reaching a 5.9% in accounts payable, 10% on inventories. 20% in receivables, this value was taken directly from 2013 instead of the average due to the last years. This assumption was done to the values on previous years remaining very constant, in terms of percentage to revenues, and as so it may indicate that they are truly related to the revenues.

Cash Flows

The free cash flow to the firm is calculated by:

$$FCFF = Ebit(1 - T) + Depreciations + Amortizations + Non\ cash\ adjustments \\ - Capital\ Expenditures - \nabla Working\ Capital$$

This value represents the total amount of cash that is generated by the firm. The values, presented in table 15, have been stable in the last years and according to the estimation the tendency is expected to continue with some increase in numbers to account for the company growth. It can also be taken into account the fact that for the estimation it isn't expected any major investment like the one Amazon has done with the purchase of Twitch, a deal around 970 million dollars in cash, which would influence by a large amount the cash flow value, like the in 2012.

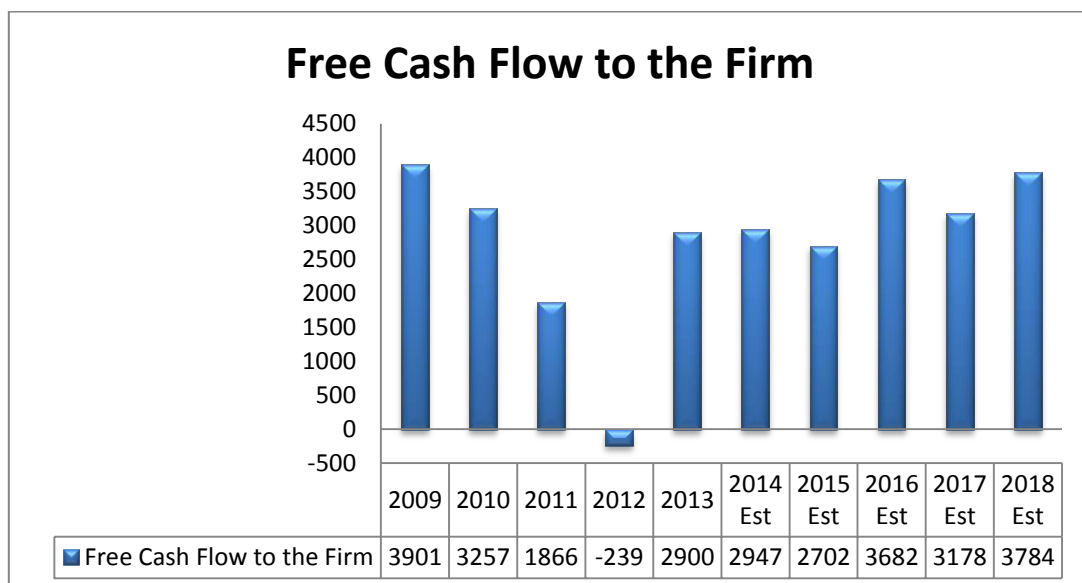


Table 15- Free Cash Flows to the Firm

APV Valuation

To compute the final value for the company due to the changes verified in the debt structure the APV method was chosen

In order to calculate the final value several rates had to be calculated and estimated. Starting from the risk free rate, R_f , which was calculated based on the value of the 10 years US treasury bonds, the value was taken on 20/11/2014 and it was at 2.34%.

The risk premium was taken from Damodaran Country Default Spreads and Risk Premiums spreadsheet²², the countries selected for the value were US and Canada, from where most of the company revenues come from, both corresponding to a risk premium of 5% that will be assumed as the one for the company.

Next is the estimation of the company levered Beta. This value was taken from Bloomberg data, corresponding to a value of 1.415; this was calculated with monthly intervals over a period of 3 years (values showed on appendix 7). With this levered beta and the previous rates mentioned, according to the formula explained in the literature, the value of the unlevered beta was calculated for every year, changing according to the year debt structure.

After calculating all these rates the cost of unlevered equity, K_u , was reached, arriving at a different value for each of the years and was computed by the following formula:

$$K_u = \text{Unlevered Beta} * \text{Risk free rate} + \text{Market Risk Premium Rate}$$

The cost of equity, K_e , was calculated based on the values of the levered beta, risk free and market risk premium, computed by the formula described on the literature, arriving at a value of 6.1%. It could be argued that it should be done two kinds of costs of equity by separating the US and Europe operations but due to data availability restriction this option wasn't the final one and as such all the operations shall be treated as one.

For the cost of Debt, R_d , was computed by taking into account the latest long term bond issue, with a value of 1.3 billion due in 2022 at a yield of 2.66%. Historically the weighted cost of debt of the company has been 2.81%. The 2.66% is estimated to be the best market valuation viable and it will be assumed as the R_d .

²² http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

The tax rate was assumed that on average the company value will float around 35% (the US corporate rate tax), even though the company operates in Europe where the taxes are lower the main gross of the operations come from the US and as so this value will serve as anchor for all the years.

The final rate is the perpetual growth rate. This value, as it is described in the literature, is constrained by two factors. The first being the stable growth rate of the company, that means the maximum amount of growth a company can achieve given its current conditions. This value is 8.85%, accounted for 2018, which is the last year of the valuation. The second constraint is that the growth can't exceed the perpetuity growth rate of the country or industry the company's operates in. These values give estimations from 7.5% to 10.3% for 2018.²³ The final value considered is 3% to account for the high growth of the company.

All the previous mentioned rates are presented on appendix 8.

Next it was computed the value of the interest tax shields, presented in table 16 below.

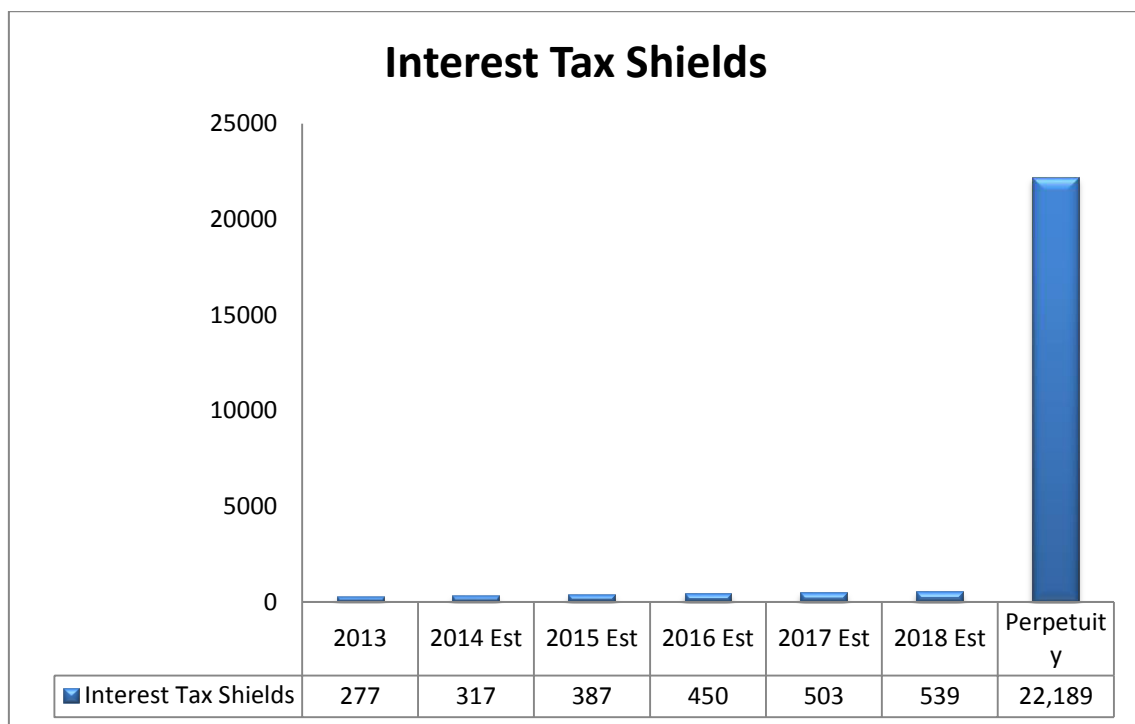


Table 16- Interest Tax shields

The final missing data needed for the computation of the company's value is the cost of bankruptcy. For the bankruptcy costs the mean value for the retail industry was used as described in the paper referred in the literature. This value accounts for 27.5% of the

²³ <https://www.internetretailer.com/trends/sales/us-e-commerce-sales-2013-2017/>

company's total unlevered value. As for the probability of default the value considered is 4.89%. This value was found by considering the model used by Moody's that considers the probability of default over 10 years, which value data is presented in appendix 6.

With all the data required to compute the final value, the APV valuation of Amazon is presented. In table 17 are presented the present values of the cash flows bankruptcy costs and interest tax shields.

In table 18 are presented the numbers of the adjustment to the previous total value of the firm, taking of debt and adding cash and marketable securities in order to account for the true value of the company.

Next in Table 19 it's the final value of the company and its value per share are presented.

APV Valuation (in Million \$)	
Total Value of Unlevered Assets	165 720
Costs of Bankruptcy	-2 229
Pv of Interest Tax shield	26 174
Total value of the Firm	189 665

Table 17- APV Valuation

Vu Adjustments (values of 2013)	
Debt	-30 413
Excess Cash	8 658
Marketable Securities	3 789

Table 18- Vu Adjustments

Total Value of the firm Adjusted	171 699
#Outstanding Shares	463
Price per Share	370.84

Table 19- Final Value of the Firm

With this estimation of value for the company the recommendation given to investors is to buy/hold due to the current stock price at 20/11/2014 being 330.54, which according to this dissertation results will increase in the next years.

Sensitivity Analysis

To conclude the APV valuation it is going to be presented some different scenarios where the values of the rates change and therefore alter the final value of the company. All these changes will try to account for possible market or economic changes that may occur in the future or if the date of the values used in this valuation were different.

The sensitivities performed accounted for changes in the cost of unlevered equity, K_u , in function of the unlevered beta and risk free rate, R_f ; the effect on tax shield that the cost of debt and tax rate have. Finally, and perhaps most relevant, is the effect of the terminal growth rate and unlevered cost of equity in the final value of the company.

All the sensitivity analysis was done using two-dimensional data tables in order to account for all the most relevant variables that influence the final value.

Bellow, in Table 20, is presented a resume of three different scenarios for the final value of the company. All the others sensitivity analysis are presented in appendix 9.

	Value per Share
Scenario 1 (g= 2%, Ru=6%)	196
Scenario 2 (g=2,5%, Ru=4%)	488
Scenario 3 (g=3.5%, Ru=5%)	363

Table 20- Scenario analysis

Value at Risk (VAR)

Finally and to conclude the APV valuation a VAR analysis will be performed, estimating the range in which the final value of the company is expected to vary.

For this, as is described in the literature, the hybrid historical simulation method will be used.

Table 21 presents the histogram from the return of daily stocks over the period of one year.

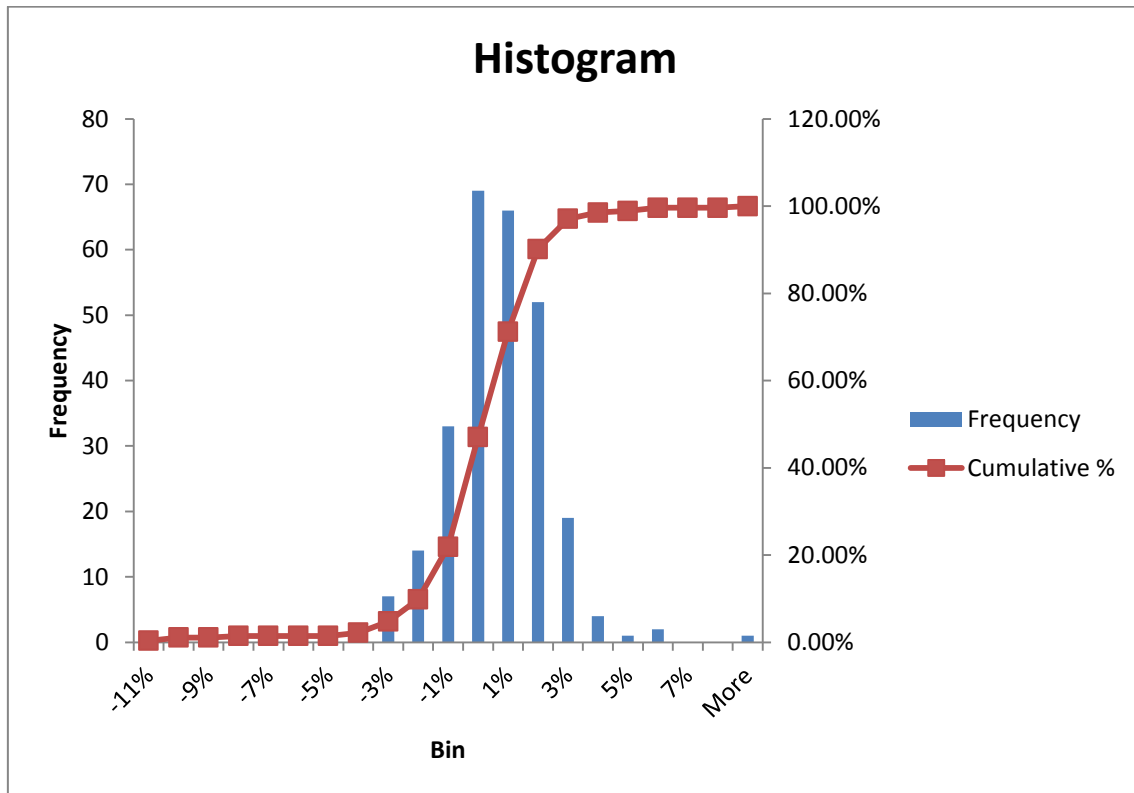


Table 21- Return values histogram

With these values three levels of confidence intervals, 99%, 95% and 90%. Those are described in table 22 below were calculated.

	Confidence interval	
90% percentile	-1,64%	2,11%
95% percentile	-2,23%	2,32%
99% percentile	-8,71%	3,52%

Table 22- Confidence Interval

With these confidence intervals applied to the final value of 370, 84 reached through the APV method we have the value range that the valuation is expected to be within. These values are presented in table 23 below.

	Value Range	
90% confidence	364,78	378,68
95% confidence	362,56	379,43
99% confidence	338,55	383,90

Table 23- Confidence intervals Value Range

Taking into account the very close results between the 90% and 95% confidence interval one can just consider the 95% confidence interval that is more accurate. We can confide that the value isn't expected to suffer any major alteration changing only within reasonable values. This is performed to assure investors that Amazon's price is expected to grow in the future even if the value achieved with this valuation isn't verified.

Multiple Valuation

As it was presented in the literature, a multiple valuation is a useful tool to compliment any kind of valuation due to its ability to compare the firm to similar ones. In the case of this evaluation it will act more to give a notion of what are the multiples among similar companies rather than the value that defines the company. The reason for this consideration is not only due to the fact that the value is quite different from the one presented on the APV valuation, and stock markets, but due to the uniqueness of Amazon's and complete difference of the business from traditional ones. This will be more deeply explained next, within the peer group selection section.

Peer Group

For any multiples valuation it must first be defined to which existing similar companies can we compare the one being evaluated. In the Amazon case, the companies to select are a rather ambiguous due to Amazon's having a very different mode of operations and a truly unique approach for its business.

Anyway, companies that were first considered were Netflix, EBAY and Alibaba.

Explaining the rationale for the final choice we start with Netflix, a company that focus on delivering videos on demand for its clients. This business is one that Amazon is considering to enter and might be a quite similar but due to the very broad content of Amazon, and the very comparable size between the two, Netflix was excluded.

Next there is EBAY, a company that operates in a segment where Amazon also operates, a marketplace sale where users are the interveners and the companies merely act as an intermediary. Due to the popularity of this kind of business and Amazon's bet on this kind of services, and despite the considerable difference between the two companies, EBAY will be chosen as part of the peer group.

Finally, Alibaba Company, a company that recently entered the US stock market and that operates in a very similar way and market as Amazon. The biggest difference between the two companies is the main market they operate, that in the case of Alibaba is China, a very big and expanding market that has made this company bigger than Amazon. Since both companies are very similar in terms of operation and business this is the most relevant and best choice to add to the peer group.

Multiples and Valuation

Before presenting the multiples and valuation it should be noted that due to the differences between all the companies, namely in size and in the case of EBAY web of operations, the valuation given by this method can't be considered as a main resource.

The values of the multiples are presented below in table 24.

	Amazon	EBAY	Alibaba	Average
Market Capitalization	151 190	68 256	265 999	161 815
EV/EBITDA 1 Year	23,9	11,3	42,7	26,0
EV/EBITDA 2 Year	17,8	10,2	29,9	19,3
P/E	183,7	18,5	50,5	84,2
P/E 1 Year	169,0	18,5	48,9	78,8
P/E 2 Years	86,3	16,6	36,0	46,3
P/CF	136,8	15,1	-	76,0
P/Book	14,9	3,4	13,6	10,6
ROE	-2,2	-0,6	-	-1,4
Expected 1 year growth	21,9	14,0	52,1	29,3
Stock Price (20/11/2014)	326,5	54,9	108,8	-

Table 24 – Multiples value

As it was predicted when selecting the peer group although the companies are direct competitors the difference in their multiples is quite large. Even so it can be seen that Amazon has most of its values higher than the average of the peer group, which in any case is a very good indicator that the company is performing better than its rivals.

To compute the value according to this method the EV/EBITADA 1 Year multiple that has an x26 value was selected. With this value multiplied by the EBITDA we obtain a final value per share for the company of 224 dollars. This value is much lower than the one given from the APV model but the difference can be explained by the lack of similar firms and disparities in the values between them all.

Even with the differences between the companies it is useful to have a notion over the multiples that each company has.

Valuation Risks

As with any valuation of a company there are some risks and factors that may alter the final value of the company. This section will present a list of the ones that are considered to have a higher relevance for the case of Amazon and this dissertation.

1. Currency Risk- This is one of the biggest risks that the company faces due to its considerable operational presence in Europe and exchange between Euro, Dollar and British Pound. In this dissertation it was considered that the risk is counteracted by the company with financial assets.
2. Economic Changes- This risk relates to the possibility, mainly in Europe, of a period of economic turmoil as it was seen in the past years. This would largely affect the company sales and lower its results.
3. Competition- With the appearance of Alibaba on the US market it is reasonable to assume a more aggressive competition for Amazon that may lead to reduced margins and market share losses.
4. Operational Costs- Taking as an example the year of 2014 where the company increase in costs led the company to announce in its third quarterly report a negative result this a possible risk for the future with the increase in size expected for the company.

Research Reports Comparison

This final section will compare the results obtained in this dissertation with the ones performed by JP Morgan and BCG. The reason of choice for these two reports is due to them being the most recent ones available.

As a starting note it must be considered that at the date of these two evaluations, released on 29 July 2014, the third quarterly report wasn't available, like it was for this dissertation, and this may change the assumptions and growth expectations in the approaches, adding also the expectations regarding Alibaba entrance on the stock market. Another difference is that in JP Morgan's report the evaluation was done over 3 years opposed to the 5 years considered in this dissertation.

In appendix 10 are presented the differences in the valuation values over the comparable years. In Table 25 is presented the final price given to Amazon.

	Value per Share
Dissertation	370.84
JP Morgan	358.61
BCG	365

Table 25- Valuation of Amazon comparison

As can be seen, the difference in valuation isn't very large and an explanation for this difference might be due to the lower results expectation that could have been from the lowering of the stock price before the second quarter. The difference in the models used can also be considered as a differentiation factor since JP Morgan uses a DCF valuation and BCG a multiple valuation based on historical values; although that with similar reasonable assumptions both DCF and APV should reach a similar value.

Conclusion

To conclude this dissertation a special notice should be given to the fact that a valuation exercise is a very subjective one, starting from the methodology used, to the assumptions used and period of estimation considered. For this reason it can't be said that this dissertation will be 100% correct as there is an impossibility to predict the future, although its results could be an accurate indicator for how the company will develop in the near future.

In this evaluation the method used was the APV, the reason behind it being the changing debt structure verified in the last few years which is expected to continue over the next ones. It was also done a multiple analysis mainly for the comparison with the peer group. Following this there was a comparison of the results reached with this dissertation and the values of the reports of JP Morgan and BCG, where it was concluded that the price should continue to go up. The price reached in this dissertation is 375.60\$ per share while JP Morgan and BCG estimate 358.61 and 365 respectively. The difference can be explained by differences in assumptions and models used.

The results achieved can be considered limited due to the fact that the assumptions taken may not reflect the reality with 2014 having incomplete results coming from the 3rd quarter report and results may still vary till the release of the annual report. Still, the most accurate assumption possible was taken and this dissertation should reflect a truthful result.

To conclude, given the results achieved in this evaluation it is recommended for investor to buy/hold stocks of amazon. This is further supported with the VAR analysis. The current undervaluation of the company will surely be corrected by the market in the near future.

Appendix

Appendix 1- E-commerce forecast

U.S. E-Commerce Sales, 2014-2018

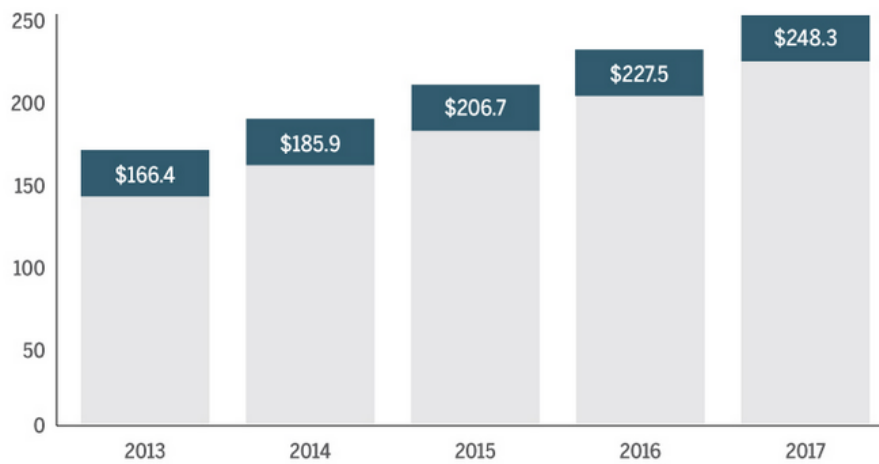
E-commerce sales will reach nearly \$500 billion by 2018. Sales (in billions)



Source: eMarketer; Forrester Research

European E-Commerce Forecast, 2013-2017

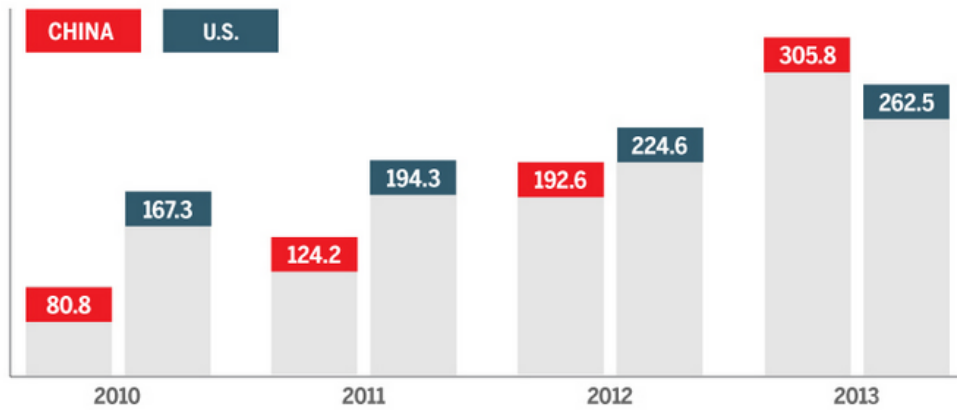
Sales (in billions)



Source: Forrester Research

How China and the U.S. Compare in E-commerce, 2010-2013

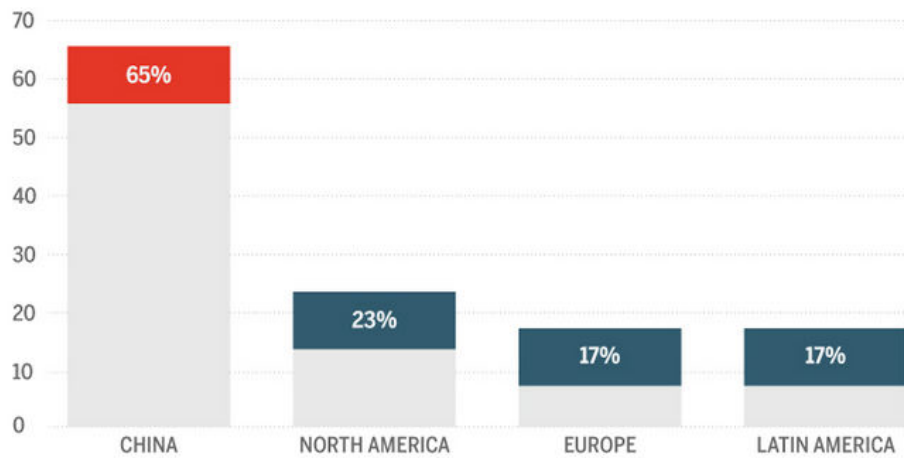
Online retail sales in China and the United States, in billions of dollars



Source: IResearch; U.S. Department of Commerce

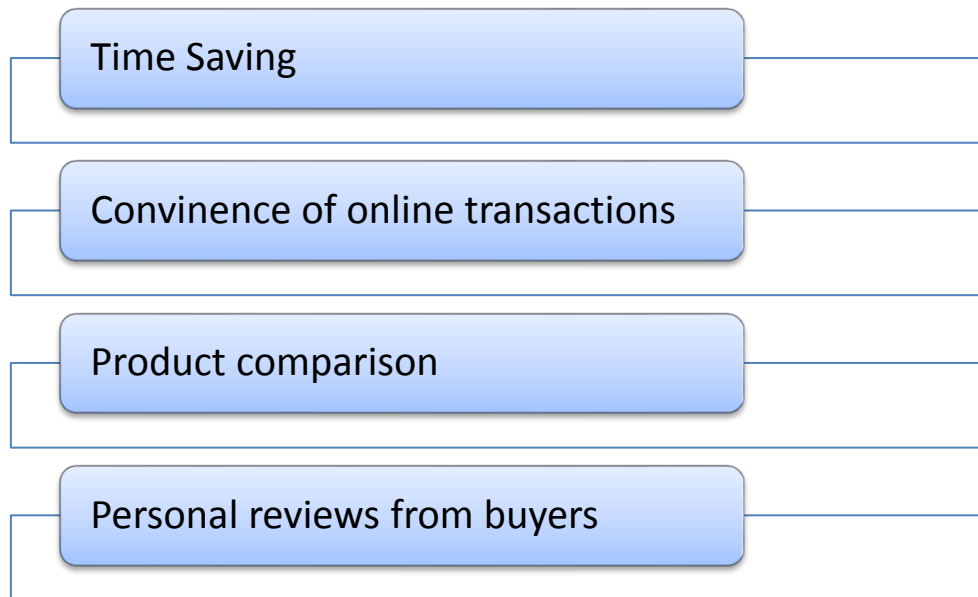
China Leads the Way in E-Commerce Growth

2013 web growth rates for Top 500 retailers in North America, Europe, Latin America and China



Source: Internet Retailer Top 500, Europe 500, China 500 and Latam 500

Appendix 2- Industry drivers



The E-commerce key drivers presented enlighten the big plus that this kind of retail brings to a business. Since it is a rather cheap model to have, in comparison to the traditional retail of owning a shop, nowadays almost every store conducts at least a part of its business via an online store, either by its own webpage or by a marketplace.

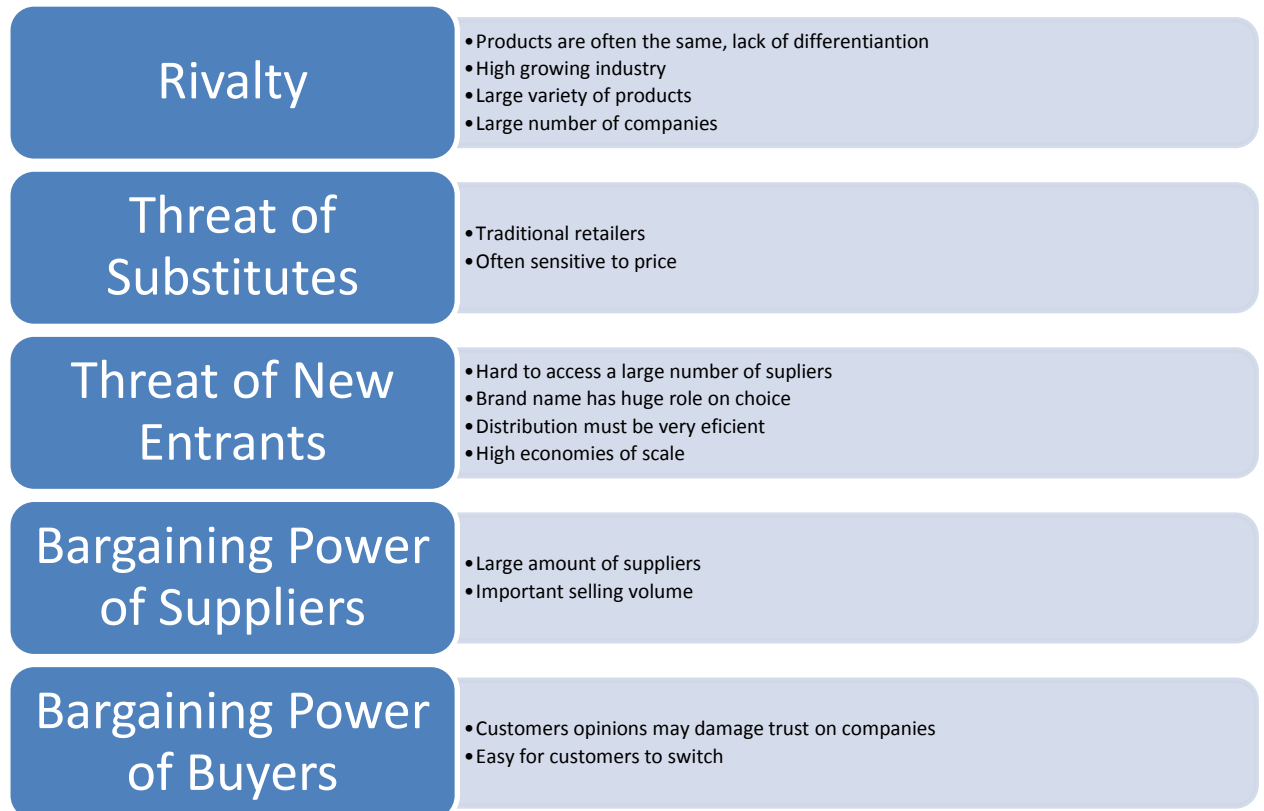
Appendix 3 – World GDP

Year	GDP
1998	3,077E+13
1999	3,194E+13
2000	3,298E+13
2001	3,278E+13
2002	3,400E+13
2003	3,815E+13
2004	4,294E+13
2005	5,033E+13
2006	5,033E+13
2007	5,670E+13
2008	6,217E+13
2009	5,889E+13
2010	6,455E+13
2011	7,145E+13
2012	7,291E+13
2013	7,491E+13

Source: World Bank

Correlation	0,897
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Appendix 4- Porter 5 Forces Analysis



When evaluating the industry according to the model, we may consider that the rivalry is a big factor since the differentiation on companies is often on the number of available products or price discounts, and with a large number of companies practicing this kind of retail it gets intense on competition. As for substitutes, E-Commerce is often viewed as a complement to the traditional physical retail model so there is a high threat that people opt for the traditional approach either due to trust or to preference. The threat of new entrants, in the optics of the Amazon business and not in the general e-commerce, can be considered low, since getting the suppliers is hard and customers often choose their buying place based on trust and this will always benefit new ones as long as they maintain their current good operations. The bargaining power of suppliers can be considered low since there are a lot of suppliers and the amount of business that is done via large internet retailers is a big part of their sales, also for small business is often the only way of getting some more exposure and awareness from the market to its products. Finally, the bargaining power of buyers is high since it limits the company's ability to charge high prices due to the fact that customers can easily find a different place to buy the same product, adding to this the trust factor that is a main factor of

choice by buyers. In an overall evaluation this industry is very appealing for existing firms due to its sales volume dimension and difficulty of new companies to enter the market.

Appendix 5- SWOT Analysis and Business Model Canvas

Strengths

- Large variety of products
- Easy to buy from and convenience
- Brand name
- Good customer relations
- Low prices
- Long term orientation
- Financial resources
- Suppliers relation
- Present in several countries
- Distribution channels
- Strong IT systems

Weaknesses

- Customers spending's
- Economic uncertainties
- No product differentiation
- Low profit margins

Opportunities

- Expansion towards east European markets
- China and India expansion
- Expansion towards online movies renting
- Growth in cloud computing

Threats

- Exposed to countries economic risks
- World unstable economic situation
- Currencies exchange rate
- High competition
- Governments restrictions

Appendix 6- Credit Default Probability

Average Cumulative Issuer-Weighted Global Default Rates, 1983-2010*

Rating	1	2	3	4	5	6	7	8	9	10
Aaa	0	0.016	0.016	0.048	0.086	0.132	0.182	0.186	0.186	0.186
Aa	0.023	0.066	0.116	0.202	0.291	0.351	0.388	0.419	0.447	0.501
A	0.062	0.2	0.414	0.623	0.853	1.099	1.371	1.677	1.969	2.216
Baa	0.202	0.561	0.998	1.501	2.06	2.636	3.175	3.71	4.26	4.89
Ba	1.197	3.437	6.183	9.067	11.51	13.757	15.76	17.679	19.526	21.337
B	4.466	10.524	16.526	21.774	26.524	31.034	35.301	39.032	42.312	45.194
Caa	15.529	27.592	37.251	45.146	51.803	56.26	59.232	62.759	67.199	73.035
Ca-C	38.739	50.58	59.678	66.353	71.652	73.385	75.92	78.884	78.884	78.884
Inv Grade	0.095	0.274	0.508	0.769	1.054	1.343	1.622	1.907	2.185	2.467
Spec Grade	4.944	10.195	15.233	19.671	23.477	26.82	29.79	32.433	34.804	39.967
All rated	1.819	3.717	5.485	6.988	8.241	9.303	10.212	11.006	11.706	12.344
Rating	11	12	13	14	15	16	17	18	19	20
Aaa	0.186	0.186	0.186	0.186	0.186	0.186	0.186	0.186	0.186	0.186
Aa	0.586	0.722	0.869	0.993	1.126	1.262	1.445	1.763	2.268	2.754
A	2.449	2.673	2.934	3.241	3.633	4.125	4.762	5.519	6.104	6.641
Baa	5.541	6.225	7.079	8.004	8.881	9.845	10.738	11.492	12.165	12.72
Ba	23.033	24.843	26.653	28.663	30.722	32.449	33.992	35.325	37.036	38.372
B	47.76	50.361	52.884	55.42	57.456	58.903	60.602	62.768	64.315	65.936
Caa	77.147	77.369	77.369	77.369	79.539	83.436	84.472	84.472	84.472	84.472
Ca-C	78.884	78.884	78.884	78.884	78.884					
Inv Grade	2.75	3.045	3.394	3.768	4.167	4.627	5.14	5.703	6.222	6.688
Spec Grade	38.877	40.781	42.631	44.574	46.411	47.908	49.294	50.636	52.066	53.292
All rated	12.918	13.48	14.056	14.653	15.245	15.829	16.435	17.074	17.688	18.235

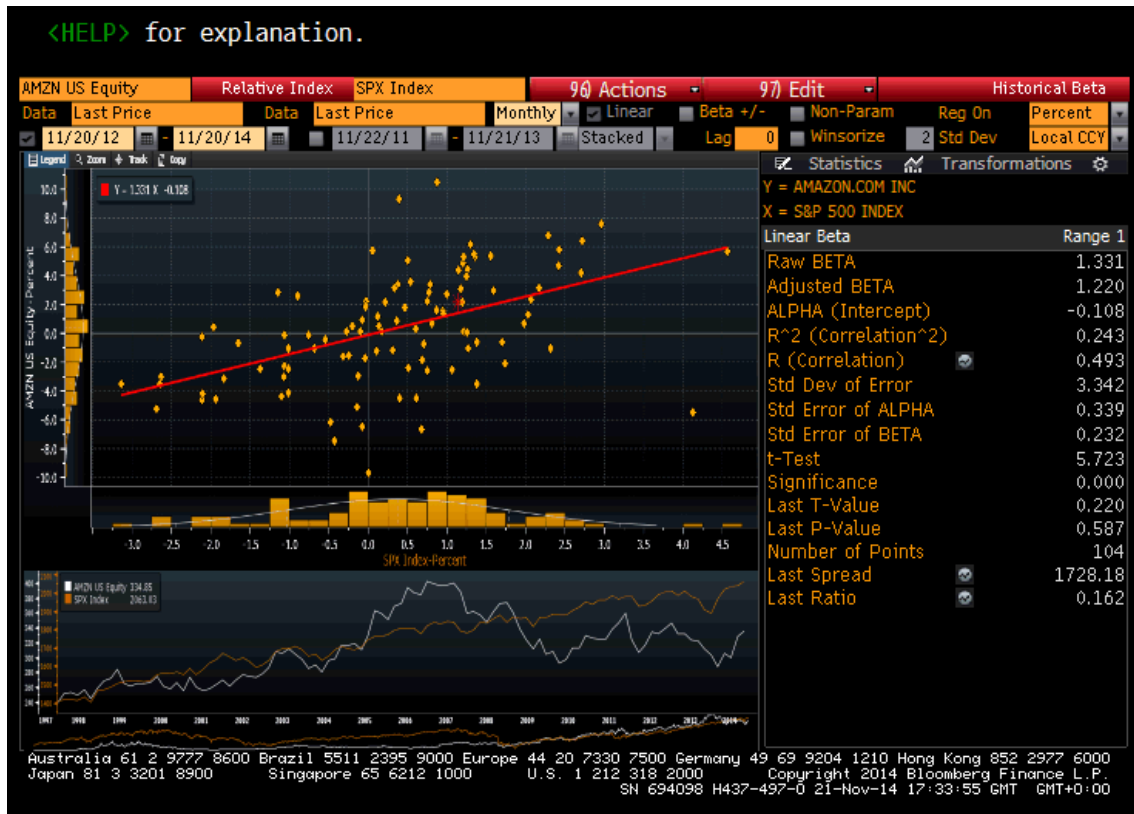
*Data in percent

Source: Moody's Corporate Default and Recovery Rates, 1920-2010, February 2011.

Moody's currently rates Amazon senior unsecured debt as Baa1 (from 26/11/2012 report²⁴)

²⁴ https://www.moodys.com/research/Moodys-rates-Amazoncoms-senior-unsecured-notes-Baa1--PR_260205

Appendix 7- Bloomberg Beta Value



Appendix 8 – Betas, Rates and Tax Shields for APV

Rf	2,34%
MRP	5%
Levered Beta	1,415
Ke	6,10%

	2012	2013	2014 Est	2015 Est	2016 Est	2017 Est	2018 Est	Perpetual
Beta unlevered	-4.75	0.72	0.66	0.57	0.61	0.54	0.63	
Kd	2.10%	2.53%	2.66%	2.66%	2.66%	2.66%	2.66%	
Ku	-21.39%	5.94%	5.62%	5.21%	5.40%	5.03%	5.48%	
WACC	1.38%	2.69%	2.74%	2.64%	2.69%	2.60%	2.71%	
Debt	24,363	30,413	35,601	45,776	57,370	70,594	59468.6	
Equity	8,192	9,746	9,853	10,656	15,493	20,956	17147.9	
D/E Ratio	2.97	3.12	3.61	4.30	3.70	3.37	3.47	
Interest Tax Shields	551.9	277	317	387	450	503	539	22,189

RoC	21.60%
Reinv rate	40.98%
Stable growth rate	8.85%

Appendix 9 – Sensitivity analysis

Ku	Rf						
Beta	4.96%	1%	2%	3%	4%	5%	6%
	0.5	1.9%	2.9%	3.9%	4.9%	5.9%	6.9%
	1	2.8%	3.8%	4.8%	5.8%	6.8%	7.8%
	1.5	3.8%	4.8%	5.8%	6.8%	7.8%	8.8%
	2	4.7%	5.7%	6.7%	7.7%	8.7%	9.7%
	2.5	5.6%	6.6%	7.6%	8.6%	9.6%	10.6%
	3	6.5%	7.5%	8.5%	9.5%	10.5%	11.5%

First it's the analysis on the unlevered cost of equity, K_u , by changing the unlevered beta and risk free rate values. As it can be seen in the table above any small change on either one of the variable brings a change around 1% the of K_u value. This change might seem little but as it will be showed in another analysis, it completely alters the final value of the company due to the discount rate applied to the free cash flows to the firm. From the two variables we can expect the risk free rate to continue to be stable due to its nature driving from the country's treasury bonds, but on the other hand the beta value is highly influenced by the market trends and period used to calculate it. If the time frame is changed to weekly instead of monthly or the period from 3 years to 2 years, major changes happen to the beta value and due to this this sensitivity is highly valued to account for possible market changes.

Tax shield	Kd					
Tax rate	26,174	1%	2%	3%	4%	5%
	31%	24,574	23,793	23,044	22,326	21,638
	32%	25,314	24,519	23,756	23,024	22,322
	33%	26,055	25,247	24,470	23,725	23,009
	34%	26,797	25,976	25,187	24,429	23,700
	35%	27,539	26,706	25,905	25,135	24,394
	36%	28,283	27,438	26,625	25,844	25,092
	37%	29,027	28,171	27,348	26,556	25,793
	38%	29,772	28,906	28,073	27,270	26,497
	39%	30,517	29,642	28,800	27,988	27,205
	40%	31,264	30,380	29,529	28,708	27,916

Second we have the analysis on the value of the interest Tax Shields. This analysis was done with the tax rate and cost of debt, R_d , values. As it can be seen the value of the tax shields doesn't suffer much difference with changes on its variable. This is still a useful analysis that indicates that the tax shields don't carry a great danger for the value of the valuation even with possible market or government changes on any of the variables it depends on, this considering that the changes would be small.

P/ share	Ru								
g	371	4%	5%	6%	7%	8%	9%	10%	11%
	0.50%	231	182	151	130	115	103	94	87
	1%	263	200	163	138	121	108	98	90
	1.50%	309	224	178	148	128	114	103	94
	2%	376	256	196	160	136	120	108	98
	2.50%	488	299	218	174	146	127	113	103
	3%	710	363	248	191	157	135	119	107
	3.50%	1,374	470	290	213	171	144	126	113
	4%	-	682	351	242	187	155	134	119

The last analysis and perhaps most relevant, is the effect of the terminal growth rate and cost of unlevered equity in the final value of the company. As it can be seen in the table above, any change on these variables incurs in major valuation changes, making them crucial to define in order to have a correct valuation. About the variables, the terminal growth rate can be considered somehow stable and expected to be constant for all scenarios, this is considering the fact that its value comes from the industry expected growth, that won't have any sudden change over the next few years. (The value considered on this valuation is estimated until 2018)

On the other hand the cost of unlevered equity as it was seen on the first sensitivity analysis is susceptible to changes, especially due to the beta. If we consider the fact that a change on 0.5 value of the beta incurs in a change of around 1% to the R_u , the value of the company can change quite a lot, this considering that the growth rate will remain equal, which can cause huge issues for the valuation, making ultimately crucial to clearly define the beta value for the sake of a consistent valuation.

Appendix 10-Comparison to other reports

Revenues			
	2014	2015	2016
Disseration	90 906	108 178	125 486
JP Morgan	91 571	112 108	135 893
BCG	-	-	-

Operating income			
	2014	2015	2016
Disseration	-520	2 328	1 946
JP Morgan	184	1 216	1 974
BCG	-	-	-

Net Income			
	2014	2015	2016
Disseration	-425	1 420	1 206
JP Morgan	-39	925	1 545
BCG	-	-	-

Capex			
	2014	2015	2016
Disseration	-4 134	-5 329	-6 440
JP Morgan	-4 849	-5 381	-6 115
BCG	-	-	-

Sales growth			
	2014	2015	2016
Disseration	22.1%	19.0%	16.0%
JP Morgan	23.0%	22.4%	21.2%
BCG	-	-	-

	Value per Share
Disseration	370.84
JP Morgan	358.61
BCG	365

Appendix 11 – Income Statement

	2012	2013	2014 Est	2015 Est	2016 Est	2017 Est	2018 Est
Revenue	61,093	74,452	90,906	108,178	125,486	143,055	160,221
Growth	27.1%	21.9%	22.1%	19.0%	16.0%	14.0%	12.0%
- Cost of Revenue	45,971	54,181	65,725	77,672	89,848	102,570	115,039
Cost of Revenues based on % of Revenues	75.2%	72.8%	72.3%	71.8%	71.6%	71.7%	71.8%
Gross Profit	15,122	20,271	25,181	30,506	35,638	40,484	45,182
- Operating Expenses	14,446	19,526	25,701	28,178	33,692	38,706	42,701
<i>Operating Expenses on % of Revenue</i>	<i>23.6%</i>	<i>26.2%</i>	<i>28.3%</i>	<i>26.0%</i>	<i>26.8%</i>	<i>27.1%</i>	<i>26.7%</i>
Operating Income	676	745	-520	2,328	1,946	1,779	2,481
- Interest Expense	92	141	133	143	90	101	97
- Foreign Exchange Losses (Gains)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Net Non-Operating Losses (Gains)	195	169	0	0	0	0	0
Pretax Income	389	435	-653	2,185	1,856	1,678	2,384
- Income Tax Expense	428	161	-229	765	650	587	835
Net Income	-39	274	-425	1,420	1,206	1,091	1,550

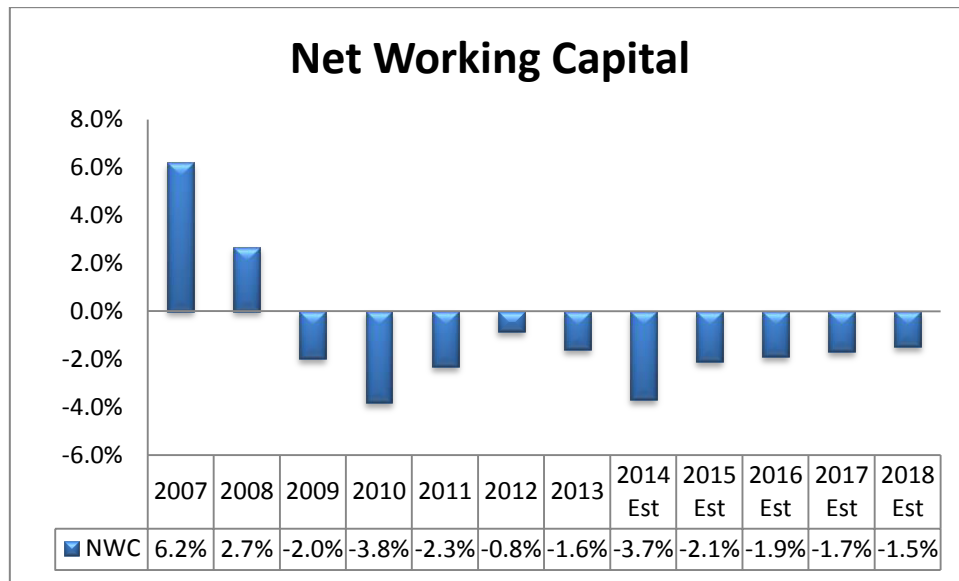
Appendix 12- Cash Flows Statement

	2012	2013	2014 Est	2015 Est	2016 Est	2017 Est	2018 Est
Cash From Operating Activities							
+ Net Income	-39	274	-425	1,420	1,206	1,091	1,550
+ Depreciation & Amortization	2,159	3,253	4,064	5,248	6,228	7,055	7,435
+ Other Non-Cash Adjustments	537	1181	253	674	661	692	570
+ Changes in Non-Cash Capital	1,523	767	1,113	1,217	1,155	1,063	1,137
Cash From Operations	4,180	5,475	5,005	8,559	9,251	9,901	10,692
Cash From Investing Activities							
+ Disposal of Fixed Assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-	-	-					
+ Capital Expenditures	3,785	3,444	-4,134	-5,329	-6,440	-7,489	-7,852
+ Increase in Investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+ Decrease in Investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+ Other Investing Activities	190	-832	1,148	97	151	141	384
Cash From Investing Activities	3,595	4,276	-2,986	-5,232	-6,289	-7,348	-7,468
Cash from Financing Activities							
+ Dividends Paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+ Change in Short-Term Borrowings	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+ Increase in Long-Term Borrowings	3,378	394	379	387	383	385	384
+ Decrease In Long-Term Borrowings	-588	1,011	-1,277	-853	-36	-1,037	-38
+ Increase in Capital Stocks	429	78	121	0.0	0.0	0.0	0.0
+ Decrease in Capital Stocks	-960	0.0	0.0	0.0	0.0	0.0	0.0
+ Other Financing Activities	-29	-86	-2,749	-2,491	-1,098	-1,743	-634
Cash from Financing Activities	2,230	-625	-3,526	-2,958	-751	-2,395	-288
Net Changes in Cash	2,815	574	-1,506	370	2,210	158	2,935

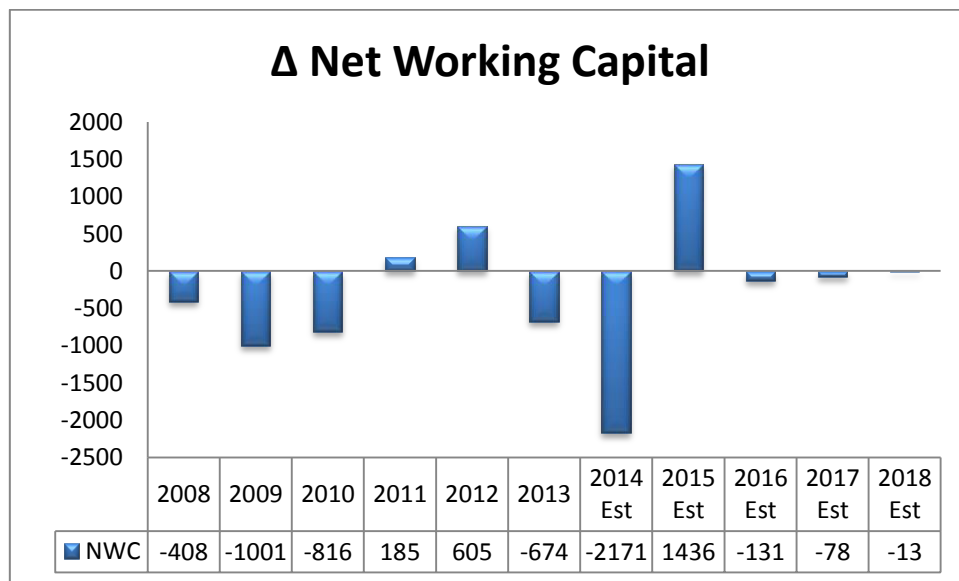
Appendix 13- Balance Sheet

	2012	2013	2014 Est	2015 Est	2016 Est	2017 Est	2018 Est
Assets							
+ Cash & Near Cash Items	8,084	8,658	7,152	7,447	9,216	9,342	11,690
+ Short-Term Investments	3,364	3,789	1,625	1,699	2,141	2,173	2,760
+ Accounts & Notes Receivable	3,364	4,767	5,229	6,369	7,547	8,418	9,499
+ Inventories	6,031	7,411	8,805	10,657	12,485	14,109	15,799
+ Other Current Assets	453	0.0	0.0	0.0	0.0	0.0	0.0
Total Current Assets	21,296	24,625	22,811	26,172	31,388	34,041	39,747
+ LT Investments & LT Receivables	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+ Net Fixed Assets	7,060	10,949	15,702	20,242	24,463	28,448	29,828
+ Other Long-Term Assets	4,199	4,585	6,307	7,297	8,381	9,484	10,811
Total Long-Term Assets	11,259	15,534	22,009	27,538	32,844	37,932	40,639
Total Assets	32,555	40,159	44,819	53,710	64,232	71,973	80,387
Liabilities & Shareholders' Equity							
+ Accounts Payable	13,318	15,133	18,181	21,636	25,097	28,611	32,044
+ Short-Term Borrowings	555	955	1,827	2,922	4,121	4,910	5,450
+ Other Short-Term Liabilities	5,129	6,892	6,365	7,920	8,069	9,927	9,665
Total Current Liabilities	19,002	22,980	26,372	32,478	37,287	43,448	47,159
+ Long-Term Borrowings	3,821	4,626	3,728	3,262	3,608	2,956	3,302
+ Other Long-Term Liabilities	1,540	2,807	4,807	7,690	10,845	12,920	14,342
Total Long-Term Liabilities	5,361	7,433	8,535	10,951	14,453	15,876	17,643
Total Liabilities	24,363	30,413	34,908	43,429	51,741	59,324	64,802
+ Total Preferred Equity	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+ Minority Interest	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+ Share Capital & APIC	8,352	9,578	10,336	10,281	12,491	12,649	15,584
+ Retained Earnings & Other Equity	-160	168	-425	0.0	0.0	0.0	0.0
Total Equity	8,192	9,746	9,911	10,281	12,491	12,649	15,584
Total Liabilities & Equity	32,555	40,159	44,819	53,710	64,232	71,973	80,387

Appendix 14- Net Working Capital



Net Working Capital as a percentage of revenues



Net Working Capital changes

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