Equity Valuation

Amazon.com, Inc.

Francisco Maria Alves Martins Cardoso Vidal

Nº 152216006

Advisor:

José Carlos Tudela Martins

1st March 2018

Dissertation submitted in partial fulfilment of requirements for the degree of MSc in Economics, at the Universidade Católica Portuguesa, March 1st 2018.

Abstract

The aim of this dissertation was to combine both theory and practice to find the Amazon's equity value, using all methods available, choosing those that are more suitable for this firm in this explicit period. From all methods commonly used, the APV and the Relative Valuation were the ones chosen, and from these two only the APV was used to compare with the report from Citi.

The model used (Adjusted Present Value) and its assumptions gave a value per share of 1381.70 dollars, a far superior value to the one traded on the market on the same day (1020.04), therefore it is recommended to buy and hold the stock.

After computing the stock value, a sensitivity analysis was done to better access the impact that some variables have on the stock's value.

Finally, a comparison with the report from Citi was conducted, to test the veracity of this dissertation. In that report Citi states that the stock should be valued at 1200. In this dissertation it was concluded that even this value of 1200 is underpricing the firm, that has a huge potential to take the world.

O objetivo desta tese era em combinar tanto a parte teórica como a parte prática, de maneira a chegar ao valor do capital próprio da Amazon, usando todos os métodos disponíveis, escolhendo aqueles que mais se adequam a esta empresa, neste período específico.

O modelo usado (Valor Presente Ajustado) e as suas premissas deram o valor de 1381.70 dólares por ação, um valor bastante superior ao que era trocado no mercado naquele dia (1020,04), daí ser recomendado comprar e guardar a ação.

Após ter sido calculado o valor da ação, foi feito uma análise de sensitividade para entender melhor o impacto que algumas variáveis têm no valor da empresa.

Finalmente, foi feita uma comparação com o relatório do Citi, para verificar a veracidade desta tese. Nesse relatório o Citi afirma que a ação deveria valer 1200. Nesta tese foi concluído que até este valor de 1200 subvaloriza a Amazon, que tem um potencial enorme para conquistar o mundo.

Acknowledgements

This dissertation marks the end of an academic career in the Economic and Financial area, showing some of the topics learned in the last years of my life.

A lot of people were responsible in this process, especially in the initial stages where a lot of information was needed, I want to thank all those responsible for this dissertation.

I want to thank professor José Carlos Tudela Martins for accepting me in this Seminar and for always being helpful and a special thanks to the person responsible for acquiring the report from the investment bank, without it this dissertation wouldn’t be possible.

List of Contents

1. Introduction

Valuation is a pillar in the financial world, many times people underestimate the importance of having a good valuation. Many investors take important decisions using valuations that are not accurate and therefore will have unexpected results. "Valuation requires two things: A willingness to learn the basic tools. Many investors want to do a valuation but don't want to learn about accounting/ present value/ etc. If you don't have time to learn, put your money in an index fund. Ninety percent of the world would be far better off. Doing it for the right reason. Most people do it for the wrong reason: they want to get rich."[1]

The aim of a valuation is to understand the returns and the risks associated with a business, this information is useful for a variety of agents, from investors to business owners, everyone should have an idea on what to expect from a business.

In the literature review I will describe the most common valuation methods and explain why some were chosen for this firm and others don't, as it is known depending on the type of firm different valuation methods should be applied since some are more suitable than others.

After explaining all methods that are being used I will focus on the computation of the valuation, to reach the goal of this thesis which is to find a price target to the share of Amazon. In order to have a better idea of the valuation, more than one method will be used, by doing this we are able to check if the valuation is highly dependent on the method chosen.

In the last part of the thesis I will perform a sensitivity analysis, this is very important because by doing this we can assess on how the value would change if the assumptions changed and understand which assumptions have a higher impact on the share price. These computations will be compared with the ones made by Citi Equity Research Team.

[1] Damodaran, A

2. Valuation Methods

There is always more than one way to value an asset, in this thesis I will use two very distinct ones, the first one is the relative valuation which tries to estimate a value of an asset by comparing with its peers(competitors), using variable like sales, earnings or cash-flows. The other method used which can be split in three different, but similar, methods is the absolute value valuation, which estimates future cash-flows of the asset and discounts them to the present.

2.1 Relative Valuation (Multiples)

This method of valuation is used every day for most of the transactions made, the reason for this is the fact that is very simple to compute therefore it saves a lot of time if you have to do several valuations. There are multiples based on equity value and others based on enterprise value the big difference between these two is the fact that one uses values that are relevant to all stakeholders, which means debt and shareholders, while equity multiples only look at values that are relevant o equity holders.

This method is very peculiar because what we are actually valuing is not the asset itself but how similar assets perform on the market. There are a lot of multiples available, each one is more suitable for a specific situation, there are multiples based on sales earnings, growth rates, book values or cash-flows. Although this method brings a lot of advantages it also brings a lot of subjectivity to the valuation, what is a comparable firm? Should we compare it based on what? Assets, revenues or sales?

2.1.1 Peer Group

In order to be able to use this method a peer group must be created, this group is composed by firms that are similar to Amazon. The definition of similar is very broad, it can be similar in revenues, growth rates, businesses, to have a good peer group firms should have the same main areas of the business and should have close market capitalization.

2.1.2 Chosen Multiples

When choosing the right multiples, to use in a valuation, an investor should look at levels of the firm. There are multiples that are more suitable for specific industries, for instance by using the Price to Book Value (PBV) in Banks and Insurance Companies the fact that earnings usually fluctuate a lot is taken under consideration. Now looking at the company itself, an investor should look at the biggest sources of value inside the firm.

Price-Earnings Ratio (PE)

This ratio measures its current share price relative to its earnings per share, it gives an idea on how much an investor is willing to pay in per unit of earnings, the following formula was used:

$$PE = \frac{Price\ per\ share}{Earnings\ per\ share}$$

In adjustment to the previous ratio there is the:

$$PEG = \frac{PE}{g}$$

Where g is the earnings growth rate, this growth rate can be historical (trailing) or can be future growth rates (forward). This multiple is the more adequate to value firms like Amazon, since most of the firm's value comes from its future growth. This multiple is used in high tech and high growth companies.

Price to Cash-Flow Ratio (PCF)

This is the last ratio used, this ratio gives an idea if the firm is under or overvalued. The big difference between this and the former is the fact that this ratio takes into account non-cash earnings such as amortization and depreciation that can impact a lot a value of a company. The formula is the following:

$$PCF = \frac{Price\ per\ share}{Cash - Flow\ per\ share}$$

Price to Sales Ratio (PS)

The final ratio compares the price of a firm with the price of its revenues, it is used when the source of value of a firm comes from its sales. Firms that are new on the market or firms that invest a lot in R&D can have large amounts of sales, but have a small profit, to value them it is better to use this ratio, since it is more able to reveal the true value of the firm. The formula is as following:

$$PS = \frac{Price\ per\ share}{Sales\ per\ share}$$

2.2 Absolut Value Valuation – Cash is King

This is the most important method used to compute Amazon's valuation, although is much more time demanding than the relative methods it gives a better idea of the value of the firm.

"The most important word in the world of money is Cash-Flow." [2]

This method uses a discounted cash-flow (DCF) analysis to achieve the value of a firm, by using this method the value of the company is deeply connected to the expectations of investors, depending on these expectations the value of the firm will change a lot. In this thesis three methods of DCF will be used, the FCFF, the FCFE and the APV. The first two methods are very connected to the assumptions made regarding the debt levels of the firm on the first and debt-to-equity levels on the second, therefore any small change in these underlying assumptions will have a huge impact on the valuation, while the second is much more flexible regarding because it allows different levels of debt.

2.2.1 Free Cash-Flow to the Firm

One of the most used DCF methods is the FCFF which is a measure of the firm's financial performance that shows the amount of cash that it being generated by the firm after all expensed and reinvestments. This method computes the value of the firm by discounting the expected free cash-flows with the WACC (the weighted average cost of capital). To get the value of the FCFF the following formula was used:

$$FCFF = EBIT(1-t) - CAPEX + Dep. + Amor. - \Delta WC$$

This method is more commonly used for firms with a stable capital structure because its discount rate is the WACC which takes into account the cost of debt and equity, to use this method we must assume a constant amount of debt.

$$WACC = \frac{E}{V} * Ke + \frac{D}{V} * Kd * (1-t)$$

There are two distinct values that will affect the valuation as it is shown below:

$$V = \sum_{t=1}^{N} \frac{FCFF_t}{(1+WACC)^t} + \frac{\frac{FCFF_{N+1}}{WACC-g}}{(1+WACC)^N}$$

The formula above shows that the value of the firm will be composed by these two values, the first is the discounted FCFF when the growth rates are changing. The second part is called the terminal value, this is computed by discounting the FCFC in the steady state period (constant growth rate).

[2] Robert Kiyosaki

With:

t= Tax Rate

Dep.= Depreciation

Amor.= Amortization

ΔWC = Changes in Working Capital

E= Market Value of Equity

D= Market Value of Debt

V = E+D

2.2.2 Free Cash-Flow to the Equity

While the previous method is focused on the cash-flows available to all stakeholders this one focused on the cash-flows available to the equity holders. It is computed by discounting all the cash-flows at the cost of equity and not the WACC as the previous method.

$$FCFE = Net\ income - CAPEX + Dep. + Amor. - \Delta WC + NB$$

To achieve the final value the FCFE must be discounted using the cost of equity which is the return that investors demand to invest in this company.

$$Ke = rf + (rm - rf) * \beta$$

The cost of capital will depend on the risk-free rate available in the market and the return of the market plus the beta which measures the unsystematic risk, the risk that is unrelated with the rest of the market.

As in the previous method the final value will depend in two parts, the first that is the discounted cash-flows until the steady-state and the second is the terminal value of the discounted cash-flows:

$$E = \sum_{t=1}^{N} \frac{FCFE_t}{(1+Ke)^t} + \frac{\frac{FCFE_{N+1}}{Ke - g}}{(1+Ke)^N}$$

With:

NB= New borrowing

rf= risk-free rate

rm= return on the market

β= unsystematic risk

2.2.3 Adjusted Present Value

The final method used is the APV, this method differs from the previous as it calculates the value of each component of the firm and after adds them together. "In the adjusted present value (APV) approach, we begin with the value of the firm without debt. As we add debt to the firm, we consider the net effect on the value by considering both benefits and costs of borrowing. To do this, we assume that the primary benefit of borrowing is a tax benefit and the most significant cost of borrowing is the added risk of bankruptcy"[3].

This method gives a lot of advantages when compared with the previous, first it shows where the value of the firm is coming from, as it separates itself in three main areas; the cash-flows discounted as the firm had no leverage, the value of tax shields and the last is the expected bankruptcy costs. Other methods don't take into consideration the tax shields and the bankruptcy costs, these two values are very important as they can have a huge impact in the valuation of a company. By changing its debt levels, the firm must balance between these two values. When the frim adds more debt, it increases its interest payments and therefore its tax shields, but it also increases the probability of bankruptcy and bankruptcy costs.

$$APV = PVU + PVTS + PVBC$$

The first part is the PVU which is the present value of the unlevered firm, the second part is the present value of the tax shields and the last part is the present value of bankruptcy costs.

The value of the unlevered firm, tax shields and bankruptcy costs are computed according to the following formulas:

$$PVU = \sum_{t=1}^{N} \frac{FCFF}{(1+Ku)^t}$$

$$PVTS = D * t * i$$

$$PVBC = PD * BC$$

With:

Ku= Unlevered Cost of Equity

D= Market value of Debt

t= Tax Rate

i= Interest Rate

PD= Probability of Default

BC= Bankruptcy Costs

[3] Damodaran, A

2.3 Conclusion

After briefly explaining the most common methods used to value any firm a method must be chosen. The Adjusted Present Value is the best choice for this case, since it doesn't require to have a stable capital structure like the Free Cash-Flow to the Firm and the Free Cash-Flow to the Equity, that require a stable amount of debt and a stable debt to equity ratio respectively.

Amazon is a growth company that is expanding worldwide by entering in new countries and businesses, to do this it must find new ways of financing, either from increasing its equity or by borrowing more from lenders. This changes in the way the firm finances itself means that its capital structure is always changing, therefore is not wise to use any other Discounted Cash-Flow method rather than the Adjusted Present Value.

Finally, on a secondary level a relative method will be used to compare with the value of the APV method and to have a valuation method that is simple to compute.

3. Amazon Valuation

After the theoretical introduction we are closer to reaching the objective of this thesis which is to find the share price of Amazon and decide whether or not to invest: "The ideal form of common stock analysis leads to a valuation of the issue which can be compared with the current price to determine whether or not the security is an attractive purchase"[4]. To value this firm, a better understanding on how it works is needed, in which industry does it operate, what obstacles can the firm face, what is the plan for the firm in the following years, etc. All of these aspects influence the value of the firm, that's why an investor should always look at the "bigger picture" and not just focus on the financial part.

3.1 Industry Overview

Amazon started as an online retailer, but in the past years it shifted its focus to other businesses, therefore we cannot state that this firm operates in one single industry. Nowadays Amazon has movie studios, advertising platforms and many more, it's becoming a world brand known for being in various areas and not as just as online book store.[5]

Its main business still is the online retailing, this market has been growing since the first year it was created, this year is expected to grow from 1.888 trillion dollars to 2.197, this represents a growth of 8.2%, for the next year it's expected to grow 8.8% to reach a level of 2.489 trillion of dollars worldwide. This market is increasing rapidly with consumers shifting from "normal" retailers to online retailers, as it is show in the following table:

Table 1: Top 10 countries with retail E-commerce sales as % of total retail sails

	2015	2016	2017	2018
UK	14.4%	15.6%	16.9%	18.0%
China	12.0%	13.8%	15.5%	16.6%
Norway	10.7%	11.5%	12.1%	12.7%
Finland	10.4%	10.8%	11.2%	11.5%
South Korea	9.8%	10.5%	11.3%	12.0%
Denmark	9.3%	9.9%	10.4%	10.8%
Germany	8.4%	9.4%	10.4%	11.2%
US	7.1%	7.7%	8.3%	8.9%
Canada	5.9%	6.6%	7.4%	8.2%
Japan	5.4%	5.8%	6.2%	6.7%

Source – "Global Online Retail Spending – Statistics and Trends", by Khalid Saleh

All the countries in this top 10 have consistently increased its percentage of E-commerce, this gives good expectations to the companies operating in this market.

[4] Benjamin Graham

[5] In Appendix 1 there are the logos of Amazon's businesses

3.2 Company Overview

Amazon is most commonly known as an online retailer, it was created by Jeffrey P.Bezos in 1994 as an online bookstore and as rapidly become one of the biggest companies in the world, with his founder reaching the Forbes Fortune 500 number one in July 2017 . It is one of the few firms that consistently increased it value for more than two decades

What makes Amazon such a successful company is the fact that its main focus are its customers [6]and the fact that they keep innovating year after year as we see on the following quote: "We have three big ideas at Amazon that we've stuck with for 18 years, and they're the reason we're successful: Put your costumer first. Invent. And be patient."[7]. Amazon is famous for its user-friendly websites that allow any customer to buy a large range of products with just one click of a button, this gives a huge strategic advantage when compared with its peers.

The company operates worldwide in three different segments: North America, International and Amazon Web Services. As shown in the following table more than half of the sales come from the North America market:

Table 2: Net Sales in the previous 3 years according with the segments.

	2014	2015	2016
NA	50,834	63,708	79,785
Intern	33,51	35,418	43,983
AWS	4,644	7,88	12,219
Total	88,988	107,006	135,987

Source: Amazon Investor Relations

The previous table also shows the increase in net sales across all segments, this is due the fact that Amazon's main focus is to grow rapidly. This firm's objective is to grow very fast, therefore no dividends are given since all the money is reinvested in the business. These sales figures are very positive, from 2014 and 2015 it increased 20.25% and 27.08% in the following year. The most profitable segment in the last three years is the AWS, the growth rate of net sales in just three years is 163.11%, showing that the firm is focusing more in this market, hoping to make it a larger segment inside the firm in the following years.

The firm defends that its lack of dividend policy is due the large need of reinvestment in the business to seek: "projects to become more efficient, expand territorially, extend and improve product line, or to otherwise widen the economic moat separating the company from its competitors"[8]. The big firms that are pursuing with this strategy such as Google and Berkshire Hathaway are delivering superior returns than most shareholders would have won by investing themselves. This is one of the reasons this strategy is becoming more popular around new firms.

[6] Appendix 4.2
[7] Jeff Bezos
[8] Warren Buffet

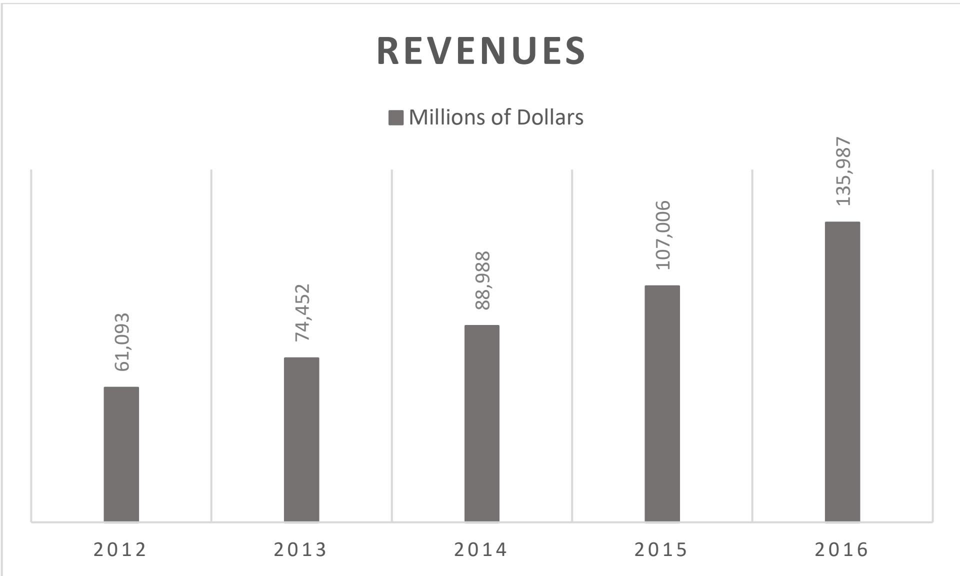
3.2.1 Financials Analysis

To have a better idea on how Amazon operates a deep analysis of the firm financials is needed[9]. The three most important areas of a financial statement to use in this evaluation are the Income Statement, where it is possible to see the financial performance of the company in the previous years, the Balance Sheet that summarizes the company's equity, assets and liabilities, and finally the Cash-Flow Statement that's shows the cash and equivalents that enter and leave the firm. Amazon's fiscal year is between the 1st of January and the 31th of December.

3.2.1.1 Revenues

As stated above the firm's main objective is to keep growing, this is easily identified by looking at revenues from the last 5 years.

Graph 1: Amazon's revenues from the last 5 years (Millions of Dollars)



Source: Thomson Reuters Eikon

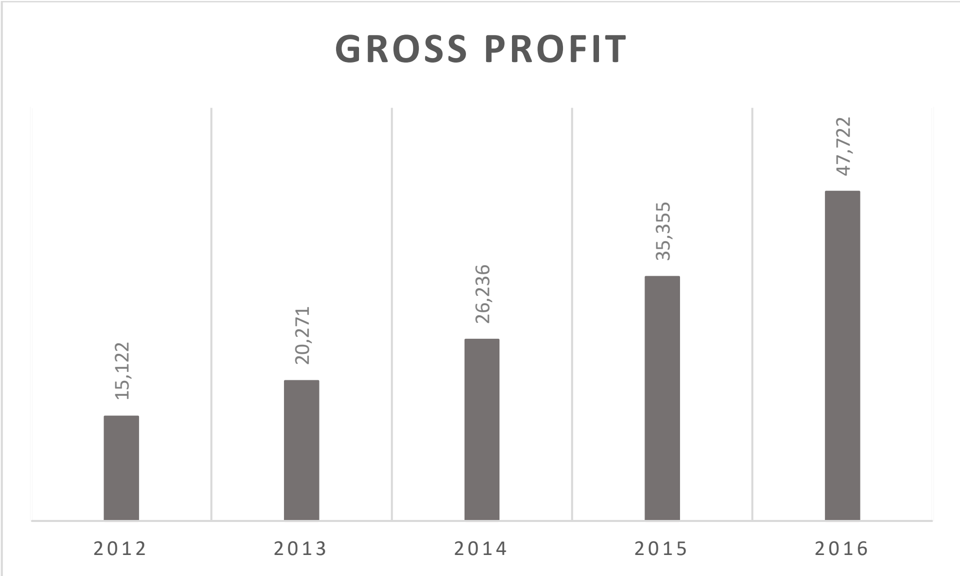
The graph above is a reflection of Amazon's mission, which is to be a growth company. Every year revenues increased, on average, 20% this is a very significant value when compared with the world economy and with other multinational companies. Amazon has been able to sustain this growth in the past two decades, this is one of the biggest reasons why it is so attractive to investors, if the firm maintains this strategy its value will continue to increase.

3.2.1.2 Gross Profit

When looking at the gross profit, which is the revenues minus the cost associated with these revenues it can be seen that the growth rate is even higher when compared with the growth rate of revenues. This shows that not only Amazon is increasing its revenues, but they are becoming more efficient, since they are increasing more its revenues than its costs of revenue.

[9] Appendix 4.3

Graph 2: Amazon's gross profit from the last 5 years (Millions of Dollars)



Source: Thomson Reuters Eikon

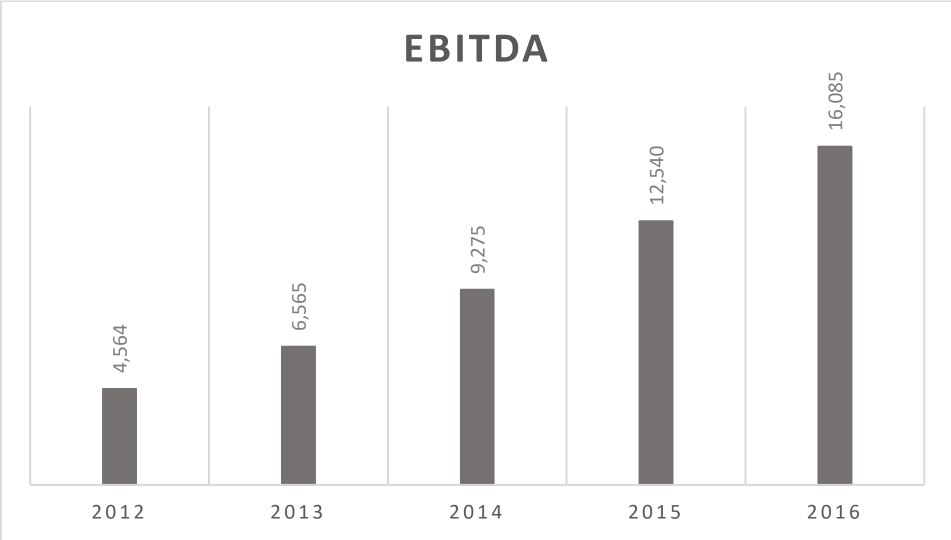
In the last 5 years the firm started looking for cheaper ways to deliver, store and produce products, to become a more efficient firm. This is clearly seen in the table above, knowing that revenues growth rate is smaller than in the growth rate of profits.

3.2.1.3 EBITDA

The EBITDA is a performance measure that shows how the company is doing after striping the costs associated with leverage and its tax effects. By doing this it offers a better reflection of operations, since some of these expenses can obscure the real performance of the company. Another advantage of using this measure is that its makes it easier to compare the financial performance of companies that are different.

The following graph gives similar idea when compared with the previous two. It shows a company that keeps growing but lacks the information regarding its financing that has a big impact in the profits of the firm. Between 2012 and 2016 Amazon was able to quadruple is EBITDA levels, this is a very good signal to investors that the financial performance of the firm is getting better.

Graph 3: Amazon's EBITDA in the last 5 years (Millions of Dollars)



Source: Thomson Reuters Eikon

3.2.1.4 Leverage

Usually growth companies are backed by a huge amount of debt that is used to finance this expansion, in Amazon's case we have the same. Since the 2008 financial crises the FED (Federal Reserve) and the ECB (European Central Bank) have been trying to keep interest rates in a very low level, this gives incentives to companies to increase their debt levels by issuing bonds, since 2009 Amazon has underwritten almost 8 billion in bonds.

When looking at the debt-to-equity ratio we see an increase in the previous years until 2014 where it reached a level of 275%, this value is a big risk for the company since most of its financing is done with "outside" money. Amazon realized that this value should be lower to reduce the risk associated with the business and to attract more investors, therefore it has been reducing this ratio is the last two years and it is expected to continue to decrease in the following years. This reduction is being done not by reducing liabilities but by increasing the equity values, the next table shows the development of this ratio in the last 5 years:

Table 3: Amazon's Debt-to-Equity Ratio(Book Value) in the previous 5 years

	2012	2013	2014	2015	2016
Net Debt	16 279	21 755	29 207	35 473	44 783
Tot. Equity	8 192	9 746	10 741	13 384	19 285
Debt-to-Equity	199%	223%	272%	265%	232%

Source: Thomson Reuters Eikon

It is very important to look at the components of this net debt, it is very different to have short-term or long-term debt. In this firm's case Amazon shows a big percentage of current liabilities to total liabilities, this increases the risk of the firm since is more likely that the firm will not be able to fulfil its obligations. In 2012 the value of this ratio was 78% since then the firm has been trying to reduce it, nowadays this figure is lower, around 68%. Although the firm as large values of current liabilities, it has always been able to have higher levels of current assets, therefore this risk is reduced since its current assets are enough to cover its current liabilities.

3.2.1.5 Investing

Now I will focus on the cash-flows from investing activities, to prove once again the strategy of Amazon, which is to keep growing. The next table shows the cash-flows from financing activities.

Table 4: Cash-Flow from financing activities in the previous 5 years (Millions of Dollars)

	2012	2013	2014	2015	2016
Capital Expenditures	-3785	-3444	-4893	-4589	-6737
Other Investing Cash Flow Items, Total	190	-832	-172	-1861	-3139
Acquisition of Business	-745	-312	-979	-795	-116
Sale/Maturity of Investment	4237	2306	3349	3025	4733
Purchase of Investments	-3302	-2826	-2542	-4091	-7756
Cash from Investing Activities	-3595	-4276	-5065	-6450	-9876

Source: Thomson Reuters Eikon

As shown above investing has been increasing every year, purchase of investments almost tripled in the last 3 years, it is expected to keep growing, since Amazon is trying to enter new markets and businesses. The firm is not only focused on being the number one online retailer, in the last years they've been trying to become global brand that has several different businesses, to do this a lot of investment is needed.

3.2.1.6 Conclusion

By looking at all financial statements of Amazon we have a better idea on where the firm stands and where the firm wants to be. It is evident that the firm is trying everything to increase its size, by constantly growing, most of this growth is financed with money that comes from outside the firm, mainly by issuing bonds. This represents a risk that investors should consider when deciding to invest or not in this firm.

In previous years this raised a lot of concerns to investors on how long will the firm be able to sustain these levels of debt, especially short-term debt. To solve this problem the firm started to reduce this short-term debt and trying to shift it to long-term, which represents a lower risk to investors. These actions reduce the risk of investing on the firm, since the long-term debt is less risky than the short-term.

3.2.2 Prospects to the Future

Amazon is in the path to conquer the world, its next big project is to build a second headquarters, that is expected to cost around 5 billion dollars. The Seattle based firm is no longer focusing all its attention in the "first love" (Seattle) and is now looking for a new location for its new headquarters. The question everyone is asking is where will Amazon's attentions be in the next years, in the previous years the firm bought The Washington Post for 250 million dollars, after it bought Whole Foods for 13 billion dollars. There is a lot of speculation in the market regarding Amazon's future purchases.

This continues to be Amazon main strategy, to have sustainable growth and to innovate, therefore almost all its profits are shifted to new investments. One investment that can have impact worldwide is Amazon's drone delivery program, which is rapidly becoming a reality. The objective of the firm is to have these drones flying around the world in the next 10 years. This investment faces a lot of challenges in today's society, from patent problems, to security and privacy, although there is a long way to go before these drones are fully working the path to reach it seems smaller and smaller day by day.

Amazon's mission to have a low-price, fast delivery model is becoming a reality as days pass, a lot of its investments go to develop new technologies that will speed deliveries, reduce costs, most of the investments go to their machine learning ecosystem, artificial intelligence and their next generation of logistics.

The firm is becoming each day more a Service firm, by doing not only vertical integration, when it acquires businesses in all levels of the production line, but by buying firms that operate in a different market. In the near future people will look the Amazon as brand that has all kinds of businesses and not just the online commerce website, one of the things that is helping spread this idea is the creation of the Amazon Studios that distribute tv-series and movies worldwide.

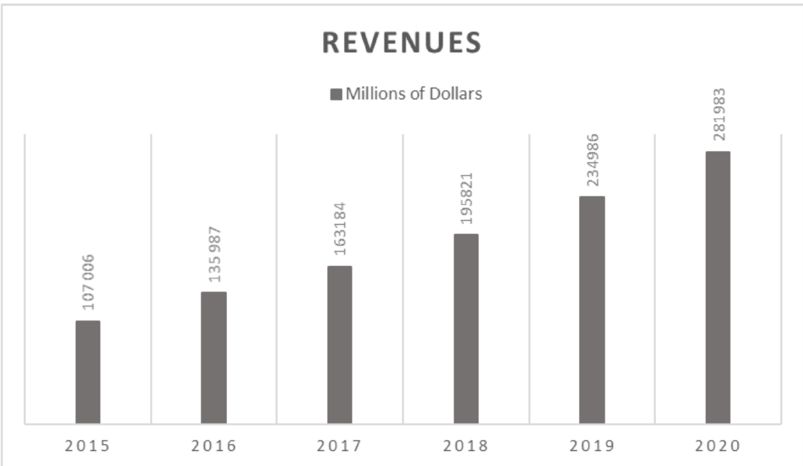
3.3 Forecasts

To compute the value of Amazon today we need to make forecasts of the values that have a big impact in this valuation. These forecasts are crucial to be able to use these methods right. Forecasts are based on expectations, therefore they are very subjective, the important part is to justify well these forecasts and assumptions. It is important to try to reduce the subjectivity behind some of these forecasts, to make this valuation reflect the true value of the firm. Since its based on expectations and expectations depend on the person behind, there are concerns raised: "Forecasts usually tell us more of the forecaster than of the future"; [10]Different analysts can reach at different values for the same firm, this is due the deep connection between forecasts and the value of the firm.

3.3.1 Revenues

The first value that we need to forecast are revenues, this has a big impact in the valuation since Amazon is a growth company, therefore most of its value comes from the growth in revenues. In the previous 10 years Amazon has been increasing more than 20% each year, it is expected to continue this growth in the following 5 years, as it continues its expansion strategy. After this 5 years it is expected to reduce this need of growth and start to focus on developing the markets the firm as entered, we expect revenues to grow at 5%.[11] The big driver of revenues in this firm are sales, according with Amazon´s CEO, it is not likely that the firm will continue with this growth rates, in the following years the firm will shift its focus to becoming more efficient and to reduce its debt levels. In the next graph there are the revenue levels of the last 2 years and the forecasts until 2020, to give an idea on how the figures will change:

Graph 4: Historical and Forecasted Values for Amazon's Revenues



With this graph it can be seen that the growth in revenues will be stable on the following years, with accordance with the previous two years. The change in the growth rate from 20% to 5% is aligned with the what Jeff Bezos stated in 2014, that the firm would maintain this growth rates for 8 to 10 years and after it would start to focus on developing the markets rather than entering in more. .

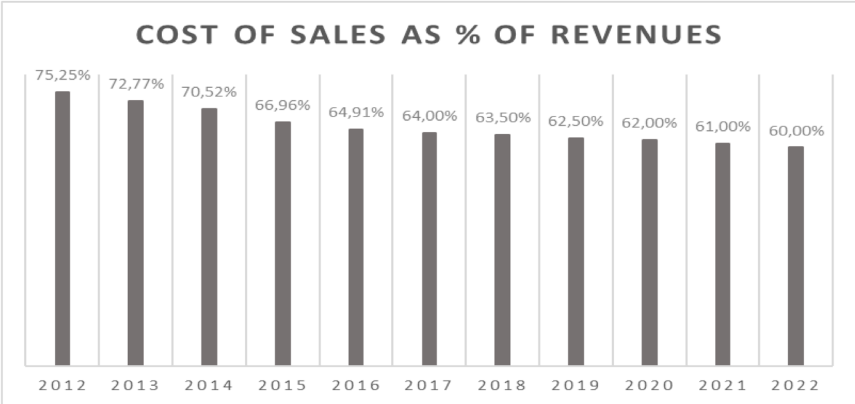
[10] Warren Buffett

[11] Appendix 4.4 Revenues Forecast and Historical Values

3.3.2 Cost of Revenues

In the previous years the firm has been reducing its cost of revenue as a percentage of revenues, in 2012 this ratio was 75%, nowadays is 65%. It is expected to reduce this figure in the following years until it reaches 60%, since it not likely that the firm will keep reducing costs forever.[12] In the next graph it can be seen this reduction in cost of sales until the year 2022, where the firm reaches its target level of 60%:

Graph 5: Historical and Forecasted Cost of Sales as % of Revenues



3.3.3 Research & Development

Amazon is a firm that is always trying to innovate, finding new ways of doing things, to be able to do this it need a big investment in R&D on a yearly basis. In the previous years the investment in R&D has been increasing by 40%, on average. With the firm trying new businesses and markets it is expected to continue to have an increase in R&D expenses, therefore it will increase by 25% in the following 5 years and after it will be reduced to 5%[13] , since revenues have decreased and the firm shifting its focus to paying its debt levels. According to the firm's CEO, investors shouldn't expect this growth for long, with Amazon becoming a more mature firm it will have to consider its longevity and to do that it must change its core strategy.

3.3.4 Depreciation/Amortization

These values tend to go on the same path as the growth of the company, to estimate these values we saw how much it was in the previous years as a percentage of total fixed assets, on average this value was 26%[14], this value was used to forecast in the previous years.

[12] Appendix 4.5 Cost of Revenue Forecast and Historical Values
[13] Appendix 4.6 R&D Forecast and Historical Values
[14] Appendix 4.7 Depreciation and Amortization Forecasts and Historical Values

3.3.5 CAPEX

Capital expenditure are the funds that the company uses to upgrade or acquire any physical assets, such as buildings or equipment. This variable was computed as the change in Property, Plant and Equipment (PP&E) from year t to year t-1 minus the depreciations. The growth rate of PP&E in the following 5 years is in accordance with the growth of the company, after 5 years it will reduce this growth.

3.3.6 Working Capital

The working capital is a measure of the financial health, in the short-term, of any firm, as it shows whether a firm has enough of current assets to cover current obligations. Amazon is a firm that has low values of working capital as percentage of sales, in the previous years the value as been around 1-3%, for the next years the figure will be 1% as Amazon will invest almost all its available funds, in order to keep innovating[15].

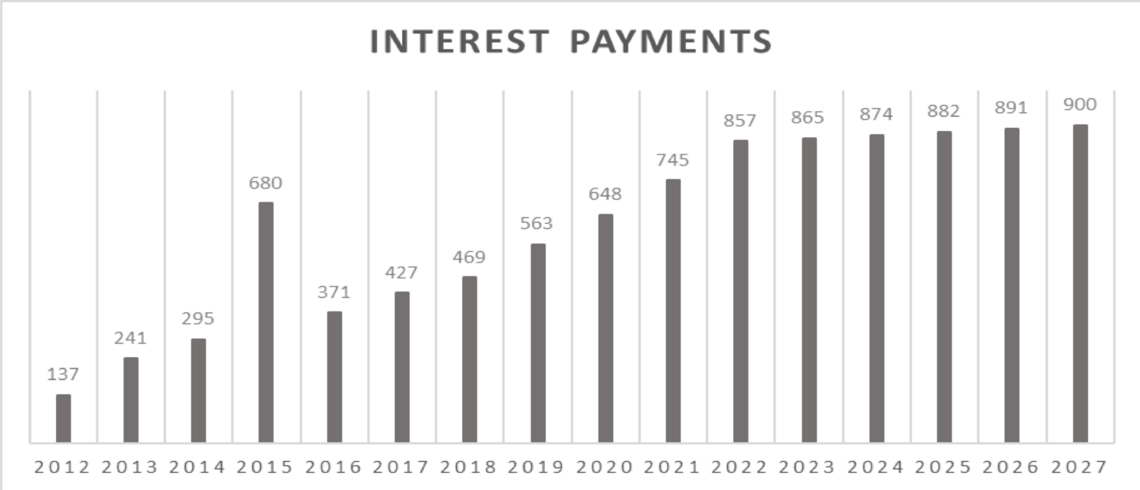
3.3.7 Debt

The firm has been increasing its debt on a yearly basis, the reason is to fund its amazing growth, in august 2017 Amazon completed a 16 billion dollar bond deal to fund its acquisition of Whole Foods. Although its debt levels have been increasing rating agencies are finding the firm less risky as days pass. Just after the announcement of this bond deal both Moody's and S&P increased the rating level as they see the firm going to a more stable path and see that investors are becoming even more optimistic regarding the future.

In the previous 15 years Amazon has increased its interest payments 15%, on average, in the next 5 years, the forecasted growth rate in interest payments was computed by considering the interest payments that the firm will have to do, due the bonds issued in the past. Between 2012 and 2015 the firm issued bonds, at a faster pace, these bonds will mature in the following years, that is the reason behind the large increase in interest payments on the next five years. After 2022, in accordance with the firm's new strategy, that its interest payments should be reduce in relation to the past, these payments will grow at an average rate of 1%, with this the firm is able to become more sustainable. In the next graph there are the estimated interest expenses:

[15] Appendix 4.8 Capex and Working Capital Changes Forecasts

Graph 6: Amazon Forecasted and Historical Interest Payments



3.3.8 Dividends

The firm hasn’t distributed dividends since the day it was created, it expected to continue with this policy for many years, since its main focus is to move all available funds to innovate and grow, therefore the Dividend Discount Model wasn’t used. This strategy is aligned with some of the biggest firms in the world, they believe that the return that they deliver is far superior to the one most individual investor would have.

3.4 General Assumptions

All annual financial statements until 2016 were retrieved from Thomson Reuters Eikon. The values of 2017 are based on the company’s estimates for the end of the year. All values after 2017 are forecasts that are based in the assumptions of the model.

There is a high growth period from 2017-2022, in these years the firm faces a rapid growth in revenues (20%), after this there is another period of smaller growth between 2022-2027 (5%), after this the steady-state is reached, where the company will grow at the same rate as the world GDP[16].

[16] Appendix 4.9 IMF data on World GDP growth

3.5 Multiples Valuation

In this section the objective is to find Amazon´s value using a model that not only considers the firms but also its competitors, to do that a relative valuation is needed. To start this process first a peer group must be created.

Amazon is unique company, there are no two firms like this one, which makes it very difficult to perform a relative analysis, since there are no comparable firms. Although there no firms equal to Amazon, there are some similar especially in some business segments.

Three firms were chosen to form this peer group, the first one and by far the most similar one is Alibaba, the Chinese based company is a fast growth company just like Amazon, these firms are the biggest two online retailers worldwide, with the big difference that is their main market, while Amazon is more focused on the US, Canada and Europe, Alibaba is more focused on the Asian Market.

Another competitor chosen to be in this group is the multinational e-commerce corporation eBay. This website has been selling products over the past 20 years, although it sells in a different way, when compared with Amazon, it is clearly seen as one of its bigger opponents.

The last firm forming this group is Netflix, on the first look it might seem odd to have a video streaming company in this group, but the reasoning behind it is the fact that Amazon has been investing large amounts of money in this market, to compete face to face with Netflix.

There were four different ratios calculated, to compute them the following information was need:

Table 5: Peer Group Data (19-October-2017)

	Mark. Cap.	PPS	EPS	CFPS	EPSG	SPS
Amazon	480,43	986,61	1,4	20,35	20,87%	284,90
Alibaba	454,97	177,93	1,12	24,87	30,67%	40,88
eBay	84,05	37,29	0,45	2,02	7,89%	8,26
Netflix	39,34	195,13	0,84	0	152,40%	20,39

Mark. Cap.	Market Capitalization
PPS	Price-per-Share
EPS	Earnings-per-Share
CFPS	Cash-Flow-per-Share
EPSG	Earnings-per-Share Growth
SPS	Sales-per-Share

Source: Thomson Reuters Eikon

In the previous table we have the market capitalization, the price-per-share, earnings-per-share, cash-flow-per-share and earnings-per-share growth and price-sales, with this information the following multiples were computed:

Table 6: Peer Group Multiples

	PE	PEG	PCF	PS
Amazon	704,72	3376,72	48,48	3,46
Alibaba	158,87	517,99	7,15	4,35
eBay	82,87	1050,27	18,46	4,51
Netflix	232,30	152,43	0,00	9,57
Average	158,01	573,56	12,81	6,14

As it is clearly seen in the table above, a relative valuation is not the best method to find the value of Amazon's stock. It is essential to have a very good peer group, a group that reflects the situation of the firm and of the market, in this case there is no firm that has the same characteristics of Amazon and even the closest one in business terms is still very different from the financial perspective. For the reasons stated above the multiples valuation is here just to add more information, always knowing that is does not reflect the true value of Amazon.

The only multiple that can be used is the price-sales ratio, this is the best for firms such as Amazon and Alibaba since most of their value comes from sales. Using this ratio, we reach a value for Amazon stock of 1560$, the value is above the one from the APV, this is a good indication that is currently underpriced in the market.

3.6 Adjusted Present Value Valuation

The method chosen to value the stock of Amazon was the APV, as stated before due the fact that the capital structure is constantly changing.

To compute this method several rates needed to be estimated, the 10-year US government bond was as a proxy for the risk-free rate (2.37%)[17], the 10-year rate was chosen because buying stocks usually is a long-term investment[18]. For the country risk premiums, the Damodaran Country Default Spreads were used (5.69%)[19]. To compute the market value of debt we assumed that all debt was rated as a Baa1, which was the rating of the last bond issuance, this leads to spread of 4.12%.[20]

For tax purposes the US tax rate was chosen (35%), although the company operates in other countries that can have lower tax rates most of its business is concentrated in the US market.

Other values that needed estimation were the Betas, this is a measure of volatility or systematic risk of a security/portfolio as comparison with the entire market. There are two Betas, the Levered and the Unlevered the first is the Beta of the firm as it is, the second is the Beta of the firm as it was all equity financed. The Levered Beta was taken from Bloomberg (1.43), with this value the Unlevered Beta was computed (0.48) using the current Debt-to-Equity ratio (289%).

With these values the Levered and the Unlevered Cost of Equity was computed, the first using the formula stated in 2.2.2 and the second using the following formula:

$$K_U = rf + \beta_U(rm - rf)$$

With:

Ku= Unlevered Cost of Equity

rf= Risk-Free

β_U= Unlevered Beta

rm= Return on the Market

In summary the discount rates were:

Kd	4,12%
Ku	3,98%
Ke	7,12%

[17] Appendix 4.10 CNBC 10-year government bond yield
[18] Vatrenjak, Aida, Present Value Measurement- discount rates research
[19] Appendix 4.11 Damodaran Country Default Spreads
[20] Appendix 4.12 Moody's Baa Corporate Bond Yield

The next step was to compute the three different sources of value, the first is the value of the assets, to do this we discount the future cash flows until the steady-state at the unlevered cost of capital, after this we assume a growth rate for these cash-flows and use a perpetuity to discount them to the present.

The following table shows how the asset value was computed:

Table 7: Free-Cash-Flow computation

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
EBITDA (+)	5899	7053	9557	11307	14989	19593	20372	21165	21971	22790	23618
Tax (-)	1821	2128	2867	3319	4408	5773	6002	6235	6471	6709	6949
WCC (-)	-333	326	392	470	564	677	203	213	224	235	247
CAPEX (-)	2406	2583	2774	2981	3206	3449	2598	2707	2707	2707	2707
FCF	2006	2016	3524	4537	6812	9695	11569	12009	12569	13138	13715

After this we need to compute the financial distress costs, which are the costs associated with the bankruptcy of the firm, this is usually the hardest to compute because its very subjective. To find this value we assumed that in the case the firm collapses 23% of its assets are lost, which is the average in tech firms. The probability of default was taken from Moody's using the rating of Baa1, the probability of default is 4.89%. [21]

The last step is to compute the value of the tax shields, these tax shields appear from the fact that the firm is financed with debt, therefore it will pay interests along the years that will reduce the amount of taxes the firm will pay next years. To compute these tax shields, we assumed a corporate tax rate of 35%. The next table shows the Tax Shields that were forecasted, according with the interest payments:

Table 8: Tax Shields Forecast

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Interest Payments	-427	-469	-563	-648	-745	-857	-865	-874	-882	-891	-900
Tax Shields	-149	-164	-197	-227	-261	-300	-303	-306	-309	-312	-315

These last two steps are the ones that make the APV such a special method, the other DCF methods don't give such importance to the financing side effects, but these side effects can have a huge impact in the company's value. With the APV we can see the pros and cons of having debt, on one side there are the cons which are the financial distress costs that increase, coeteris paribus, as the level of debt increases, this makes the firm riskier and lowers its price. On the other hand, there are the pros which are the tax shields that can increase a firm's value and reduce its risk.

[21] 4.13 Moody's Default Probabilities

The following table has the results from the model, showing the three different sources of value:

Table 9: APV Method

Adjusted Present Value (Millions $)	
Asset Value (+)	775118
PV of Tax Shields (+)	7358.82
PV of Bankruptcy Costs (-)	8718
Equity Value (Per Share)	1381,70

With this price the recommendation that is given to investors is to buy and hold to stock, waiting for the market to price correctly Amazon.

3.7 Sensitivity Analysis

There is a lot of uncertainty behind the assumptions that are on the base of the models used, to check how the value of the firm changes as some of these variables change there is the need to perform a sensitivity analysis.

During this section some variables will be changed and it will be clear on how these changes will it impact the value of Amazon, to have a better idea on how the value can float throughout time.

These tests must be done in any valuation, investors must be ready to act if the forecasts are not aligned with what is going on in the market, a lot of times the market has movements that almost no one is expecting, in those times great gains and losses can be made.

3.7.1 Sales

A lot of investor say that it is the growth in sales that drives the value of Amazon up, if this is true a small change in the growth rate can have a big impact on the value. To test for this, the growth rate of sales was changed and after the value of the firm was computed, as seen in the following table:

Table 10: Amazon's PPS changing growth rate of sales

Changes in Sales	Price Per Share
Current	1381,7
1 p.p. Increase	1520,57
2 p.p. Increase	1659,43
3 p.p. Increase	1798,3
1 p.p. Decrease	1242,84
2 p.p. Decrease	1103,98
3 p.p. Decrease	965,11

The table above shows that sales have a significant impact on the value of the firm, therefore investors should be concern on whether the forecast are reliable or not. It is common for firms such as Amazon to experience big shifts in value as sales change, that's one of the reasons the firm is focused on increase sustainably this figure.

3.7.2 Research and Development

Amazon is characterized by investing significant amounts of its earnings in finding innovative products and processes, to do so it needs to channel funds to Research and Development, In the model it was assumed that R&D expenses will increase by 25% yearly until 2022, after this they increase by 4% for five years. On the next table it is possible to see the impact of a change in this growth rate on the value of the stock:

Table 11: Amazon´s Value when R&D are changing

Changes in R&D Expenses	Price Per Share
Current	1381,7
1 p.p. Increase	725,12
1 p.p. Decrease	1978,12

Although it was expected to impact the value of the firm, is wasn't obvious that the impact would be this big, this is due the large funds that are shifted to this segment. There is another impact that is far harder to compute which is the value that will come from the projects developed, due the investment in R&D. In this analysis it is just seen as a cost, but in reality, these investments can change completely the value of the firm.

3.7.3 Discount Rates

These rates can change every day, knowing how a change will impact the firm's value is very important to make sure that the investment is solid. Usually small changes in these rates have significant impact on valuations, therefore it is crucial for investors to know the impact of these changes. The analysis will be done on the two rate that have a bigger influence on the value of the stock, the risk-free rate and the unlevered cost of equity.

3.7.3.1 Risk-Free

The risk-free rate is usually stable on the short-term, meaning that it is not likely that the value will change in the following period, but it is still important to understand how it impacts the value.

Table 12: Amazon's value when rf is changing

Changes in Risk-Free Rate	Price Per Share
rf=2,37%	1381,7
rf=3,37%	1077,27
rf=1,37%	1896,41

As seen above, by changing the risk-free rate by 1 percental point can have changes of almost 500 dollars on the value of the stock.

3.7.3.2 Cost of Equity (Unlevered)

This rate is the one used in the APV method to discount the future cash-flows, therefore it is expected that this rate is one of the variables that has a higher impact on Amazon's value. The following table shows the impact of a change of this rate by 1 percental point on the value of the firm:

Table 13: Amazon's Value as the ku is changing

Changes in Cost of Equity	Price Per Share
ku=3,98%	1381,7
ku=4,98%	885,51
ku=2.98%	2866,79

As expected a change in this rate can shift the value of the stock by a large margin, this is not what most investors desire, since they prefer small changes on the value when the forecasts are not accurate.

With this sensitivity analysis an investor is more aware of what can happen to the value of the firm if the forecasts are not aligned with the market, it is crucial to understand what impact some variables have in this valuation.

3.8 Comparison with Citi's report

To finish this dissertation a comparison between this valuation and one made by an investment bank is needed, in this case is Citi.

The report from Citi was done in July 28th 2017, although both the report and the dissertation reach the same recommendation[22], the price targets are different with the dissertation being more optimistic regarding the future of the firm.

The biggest difference between the models is that in the report Citi used a Discounted Cash-Flow method[23], in particular, the Free Cash-flow to the Firm, while on this thesis I used the APV approach. Another difference is that they used relative valuation methods[24], in addition to the DCF, that in this dissertation were computed but were not used to access what is the fair value of Amazon's stock.

By using the DCF method, Citi is disregarding the fact that the firm's capital structure is constantly changing, these changes impact the firm's value as seen before, through tax shields and bankruptcy costs. Using this method, it is not taken into consideration the fact that Amazon will continue to find new sources of investment to keep it focus on innovation and growth. Having this in mind the APV model gives a better idea on the fair value of Amazon's share.

Even though the valuation models are different, they both give the same recommendations, which is to buy and hold the stock, since the market is not pricing it correctly. This gives incentives to investors, due the fact that different models give almost the same conclusions, it is much better on the investors perspective to have reports that state the same conclusion rather than having completely different reports.

In the report, Citi analysts are more optimistic in the first 5 years, having on average a growth rate of sales above 20%, [25]as seen in the sensitivity analysis section, a small change in this variable changes the value of the firm by a large amount. This change pushes the value up, for the value to be below the one in this dissertation they need to have variables that drive the value down. One of these variables can be the discount rate, that in their case was 7.5%, far superior to the one used in the APV method, since the discount factor is higher the present value of the cash-flows will be smaller, coeteris paribus.

Since both results are similar what is important to understand is the fact that the market is not pricing the stock as it should, the market is being pessimist when regarding prospects of the firm. If the players in the market paid more attention to the firm's financials may be this wouldn't happen.

[22] Appendix 4.14 Citi Equity Research Team Recommendation
[23] Appendix 4.15 Citi DCF Method
[24] Appendix 4.16 Citi Multiples Approach
[25] Appendix 4.17 Citi Growth Rates Forecast

3.9 Conclusion

To finish this dissertation, it is crucial to refer that all valuations are very subjective and that the “accounting numbers are the beginning, not the end, of business valuation”[26], it is important to look at all aspects of the firm, the strategy that is being developed is as important as the financials and forecasts. Future projects and ideas can boost the value up, but they can also decrease it, if proven a failure. This type of gains and losses are very hard to predict and even incidents on the macro (industry, country, world) level can have a big impact on the firm. All methods and assumptions can differ from analyst to analyst, because each one will have different expectations regarding the future of the company and the economy.

It is very important to understand that there is always more than one model to evaluate a firm, the trick is to find the model that is more suitable for a specific company in a specific period. Even the same firm can be evaluated using different methods if the time period is different, for instance it might be good to use an DCF method while the capital structure is stable, but if after some years the capital structure is no longer stable then it is wise to shift to the APV method. This proves that no method is the “best” forever, that’s why it is important to start from scratch every time, to not make the mistake of using a model that no longer suits that situation.

Looking at the price of Amazon’s stock today (29th December 2017) we can see that both Citi analysts and myself were right on the path that the firm stock will take (1169.47$), although prices can change drastically from one day to another it is not likely to have a big change in the following months. In the next months it is expected that the share value reaches the target price desired.

If an investor had bought the stock on the day the report was released it would have increased its wealth by 154.93$. This means that the market is correcting this undervaluation and soon the price will reflect the true value of the firm. In just under 5 months, the share of Amazon had returns of 15,27%, way above the S&P 500 Index returns from the same period (8.23%). This is a very good indicator of how well the firm is performing and that this valuation is fair.

“I think Amazon is the greatest start-up and the greatest company in the world. The way they are using new technologies is not just disrupting retail, it’s getting ready to disrupt everything”[27]

This quote is from a famous billionaire tech investor in February this year, it shows how some of the top investors in the world see the diversified firm and believe it is the right place to invest their money.

[26] Warren Buffet
[27] Mark Cuban

4. Appendix

4.1 Amazon's Businesses

4.2 Amazon's Mission/Vision/Values

Source: amazon.com

4.3 Amazon's Financials

Source: Thomson Reuters Eikon

4.3.1 Income Statement

	2016	2015	2014	2013	2012
Period End Date	31-Dec-2016	31-Dec-2015	31-Dec-2014	31-Dec-2013	31-Dec-2012
Revenue	135 987	107 006	88 988	74 452	61 093
Net Sales	135 987	107 006	88 988	74 452	61 093
Other Revenue, Total	--	--	--	--	--
Total Revenue	135 987	107 006	88 988	74 452	61 093
Cost of Revenue, Total	88 265	71 651	62 752	54 181	45 971
Cost of Revenue	88 265	71 651	62 752	54 181	45 971
Gross Profit	47 722	35 355	26 236	20 271	15 122
Selling/General/Admin. Expenses, Total	27 284	20 411	16 650	12 847	9 723
Selling/General/Administrative Expense	25 989	19 516	15 957	12 316	9 723
Labor & Related Expense	1 295	895	693	531	--
Research & Development	16 085	12 540	9 275	6 565	4 564
Depreciation/Amortization	1 716	1 381	1 146	753	--
Amortization of Intangibles	1 716	1 381	1 146	753	--
Other Operating Expenses, Total	(1 549)	(1 210)	(1 013)	(639)	159
Other, Net	(1 549)	(1 210)	(1 013)	(639)	159
Total Operating Expense	131 801	104 773	88 810	73 707	60 417
Operating Income	4 186	2 233	178	745	676
Interest Expense, Net Non-Operating	(484)	(459)	(210)	(141)	(92)
Interest Expense - Non-Operating	(484)	(459)	(210)	(141)	(92)
Interest/Invest Income - Non-Operating	113	(221)	(85)	(100)	(45)
Interest Income - Non-Operating	100	50	39	38	40
Investment Income - Non-Operating	13	(271)	(124)	(138)	(85)
Interest Income(Exp), Net Non-Operating	--	--	--	--	--
Interest Inc.(Exp.),Net-Non-Op., Total	(371)	(680)	(295)	(241)	(137)
Gain (Loss) on Sale of Assets	--	--	--	--	--
Other, Net	77	15	6	2	5
Other Non-Operating Income (Expense)	77	15	6	2	5
Net Income Before Taxes	3 892	1 568	(111)	506	544
Provision for Income Taxes	1 425	950	167	161	428
Net Income After Taxes	2 467	618	(278)	345	116
Minority Interest	--	--	--	--	--
Equity In Affiliates	(96)	(22)	37	(71)	(155)
Net Income	2 371	596	(241)	274	(39)

4.3.2 Balance Sheet

	2016	2015	2014	2013	2012
Period End Date	31-Dec-2016	31-Dec-2015	31-Dec-2014	31-Dec-2013	31-Dec-2012
Assets ($ Millions)					
Cash and Short Term Investments	25 981	19 808	17 416	12 447	11 448
Cash & Equivalents	19 334	15 890	14 557	8 658	8 084
Short Term Investments	6 647	3 918	2 859	3 789	3 364
Accounts Receivable - Trade, Net	8 339	5 654	5 612	4 767	3 817
Accounts Receivable - Trade, Gross	--	--	5 802	4 920	3 933
Provision for Doubtful Accounts	--	--	(190)	(153)	(116)
Total Receivables, Net	8 339	5 654	5 612	4 767	3 817
Total Inventory	11 461	10 243	8 299	7 411	6 031
Prepaid Expenses	--	--	--	--	--
Other Current Assets, Total	--	--	--	--	--
Total Current Assets	45 781	35 705	31 327	24 625	21 296
Property/Plant/Equipment, Total - Gross	42 441	30 053	22 730	14 809	9 582
Land/Improvements - Gross	13 998	9 770	7 150	4 584	2 966
Machinery/Equipment - Gross	25 989	18 417	14 213	9 274	6 228
Construction in Progress - Gross	1 805	1 532	1 063	720	214
Other Property/Plant/Equipment - Gross	649	334	304	231	174
Property/Plant/Equipment, Total - Net	29 114	21 838	16 967	10 949	7 060
Accumulated Depreciation, Total	(13 327)	(8 215)	(5 763)	(3 860)	(2 522)
Goodwill, Net	3 784	3 759	3 319	2 655	2 552
Intangibles, Net	854	992	764	645	725
Intangibles - Gross	1 900	1 847	1 534	1 248	1 162
Accumulated Intangible Amortization	(1 046)	(855)	(770)	(603)	(437)
Long Term Investments	--	--	--	--	--
Note Receivable - Long Term	--	--	--	--	--
Other Long Term Assets, Total	3 869	2 453	2 128	1 285	922
Other Long Term Assets	3 869	2 453	2 128	1 285	922
Total Assets	83 402	64 747	54 505	40 159	32 555
Liabilities ($ Millions)					
Accounts Payable	25 309	20 397	16 459	15 133	13 318
Payable/Accrued	--	--	--	--	--
Accrued Expenses	9 598	10 372	7 727	5 705	3 792
Notes Payable/Short Term Debt	0	0	0	0	0
Current Port. of LT Debt/Capital Leases	4 141	--	2 080	983	--

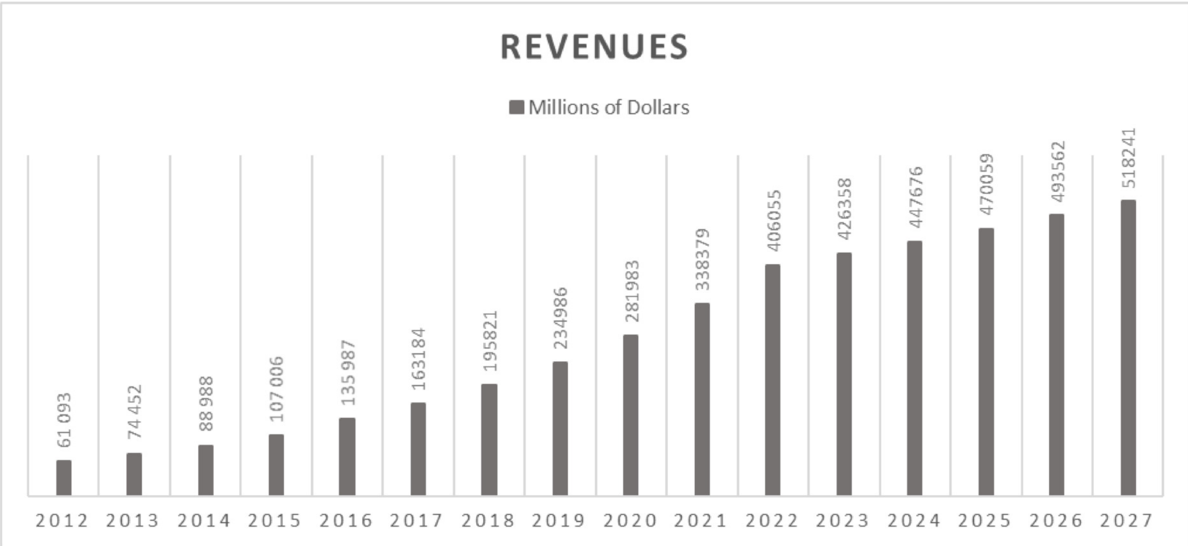
Other Current liabilities, Total	4 768	3 118	1 823	1 159	1 892
Customer Advances	4 768	3 118	1 823	1 159	792
Other Payables	--	--	--	--	1 100
Total Current Liabilities	43 816	33 887	28 089	22 980	19 002
Total Long Term Debt	15 213	14 175	12 489	5 181	3 830
Long Term Debt	7 694	8 227	8 265	3 191	3 084
Capital Lease Obligations	7 519	5 948	4 224	1 990	746
Total Debt	19 354	14 175	14 569	6 164	3 830
Deferred Income Tax	392	407	1 021	--	--
Deferred Income Tax - LT Liability	392	407	1 021	--	--
Minority Interest	--	--	--	--	--
Other Liabilities, Total	4 696	2 894	2 165	2 252	1 531
Other Long Term Liabilities	4 696	2 894	2 165	2 252	1 531
Total Liabilities	64 117	51 363	43 764	30 413	24 363
Shareholders Equity ($ Millions)					
Common Stock, Total	5	5	5	5	5
Common Stock	5	5	5	5	5
Additional Paid-In Capital	17 186	13 394	11 135	9 573	8 347
Retained Earnings (Accumulated Deficit)	4 916	2 545	1 949	2 190	1 916
Treasury Stock - Common	(1 837)	(1 837)	(1 837)	(1 837)	(1 837)
ESOP Debt Guarantee	--	--	--	--	--
Unrealized Gain (Loss)	16	(1)	1	2	11
Other Equity, Total	(1 001)	(722)	(512)	(187)	(250)
Translation Adjustment	(1 001)	(722)	(512)	(187)	(250)
Total Equity	19 285	13 384	10 741	9 746	8 192
Total Liabilities & Shareholders' Equity	83 402	64 747	54 505	40 159	32 555
Total Common Shares Outstanding	477	471	465	459	454

4.3.3 Cash-Flow Statement

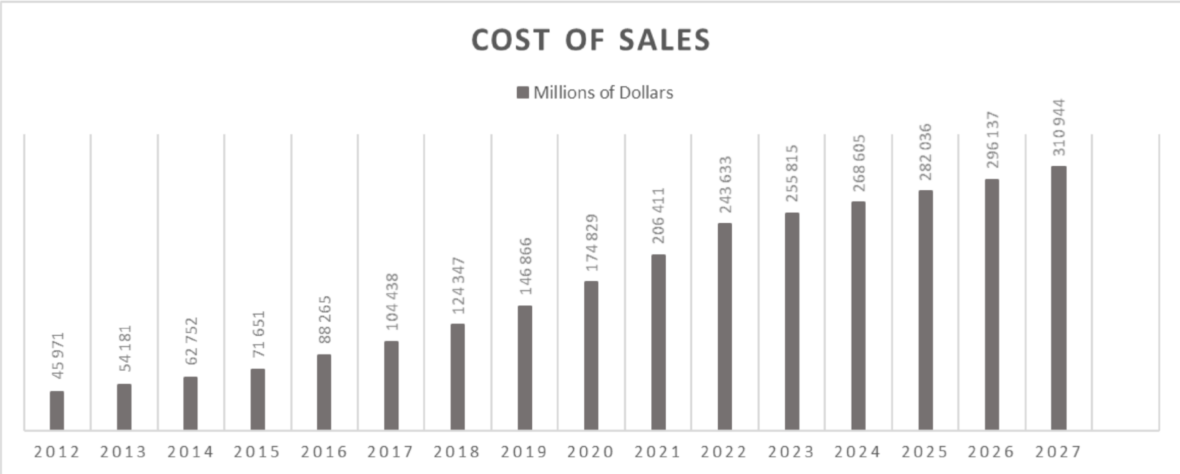
	2016	2015	2014	2013	2012
Period End Date	31-Dec-2016	31-Dec-2015	31-Dec-2014	31-Dec-2013	31-Dec-2012
Cash Flow-Operating Activities ($ Millions)					
Net Income/Starting Line	2 371	596	(241)	274	(39)
Depreciation/Depletion	8 116	6 281	4 746	3 253	2 159
Depreciation	8 116	6 281	4 746	3 253	2 159
Amortization	--	--	--	--	--
Deferred Taxes	(246)	81	(316)	(156)	(265)
Non-Cash Items	2 286	2 405	1 679	1 337	802
Unusual Items	--	5	(3)	1	(9)
Other Non-Cash Items	2 286	2 400	1 682	1 336	811
Changes in Working Capital	3 916	2 557	974	767	1 523
Accounts Receivable	(3 367)	(1 755)	(1 039)	(846)	(861)
Inventories	(1 426)	(2 187)	(1 193)	(1 410)	(999)
Other Assets	11 931	7 401	4 433	2 691	1 796
Accounts Payable	5 030	4 294	1 759	1 888	2 070
Accrued Expenses	1 724	913	706	736	1 038
Other Liabilities	(9 976)	(6 109)	(3 692)	(2 292)	(1 521)
Cash from Operating Activities	16 443	11 920	6 842	5 475	4 180
Cash Flow-Investing Activities ($ Millions)					
Capital Expenditures	(6 737)	(4 589)	(4 893)	(3 444)	(3 785)
Purchase of Fixed Assets	(6 737)	(4 589)	(4 893)	(3 444)	(3 785)
Other Investing Cash Flow Items, Total	(3 139)	(1 861)	(172)	(832)	190
Acquisition of Business	(116)	(795)	(979)	(312)	(745)
Sale/Maturity of Investment	4 733	3 025	3 349	2 306	4 237
Purchase of Investments	(7 756)	(4 091)	(2 542)	(2 826)	(3 302)
Cash from Investing Activities	(9 876)	(6 450)	(5 065)	(4 276)	(3 595)
Cash Flow-Financing Activities ($ Millions)					
Financing Cash Flow Items	829	119	6	78	429
Other Financing Cash Flow	829	119	6	78	429
Total Cash Dividends Paid	--	--	--	--	--
Issuance (Retirement) of Stock, Net	--	--	0	0	(960)
Repurchase/Retirement of Common	--	--	0	0	(960)
Common Stock, Net	--	--	0	0	(960)
Issuance (Retirement) of Debt, Net	(3 740)	(3 882)	4 426	(617)	2 790
Long Term Debt Issued	621	353	6 359	394	3 378

Long Term Debt Reduction	(4 361)	(4 235)	(1 933)	(1 011)	(588)
Long Term Debt, Net	(3 740)	(3 882)	4 426	(617)	2 790
Cash from Financing Activities	(2 911)	(3 763)	4 432	(539)	2 259
Foreign Exchange Effects	(212)	(374)	(310)	(86)	(29)
Net Change in Cash	3 444	1 333	5 899	574	2 815
Net Cash - Beginning Balance	15 890	14 557	8 658	8 084	5 269
Net Cash - Ending Balance	19 334	15 890	14 557	8 658	8 084
Cash Interest Paid	290	325	91	97	31
Cash Taxes Paid	412	273	177	169	112
Reported Cash from Operating Activities	--	--	--	--	--
Reported Cash from Investing Activities	--	--	--	--	--
Reported Cash from Financing Activities	--	--	--	--	--
Free Cash Flow	9 706	7 331	1 949	2 031	395

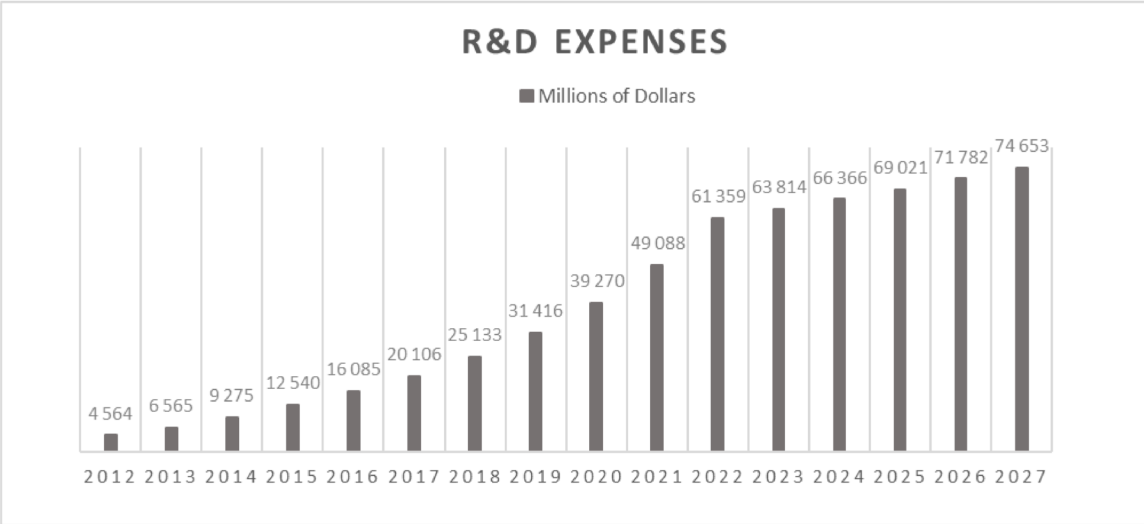
4.4 Revenues Forecast and Historical Values



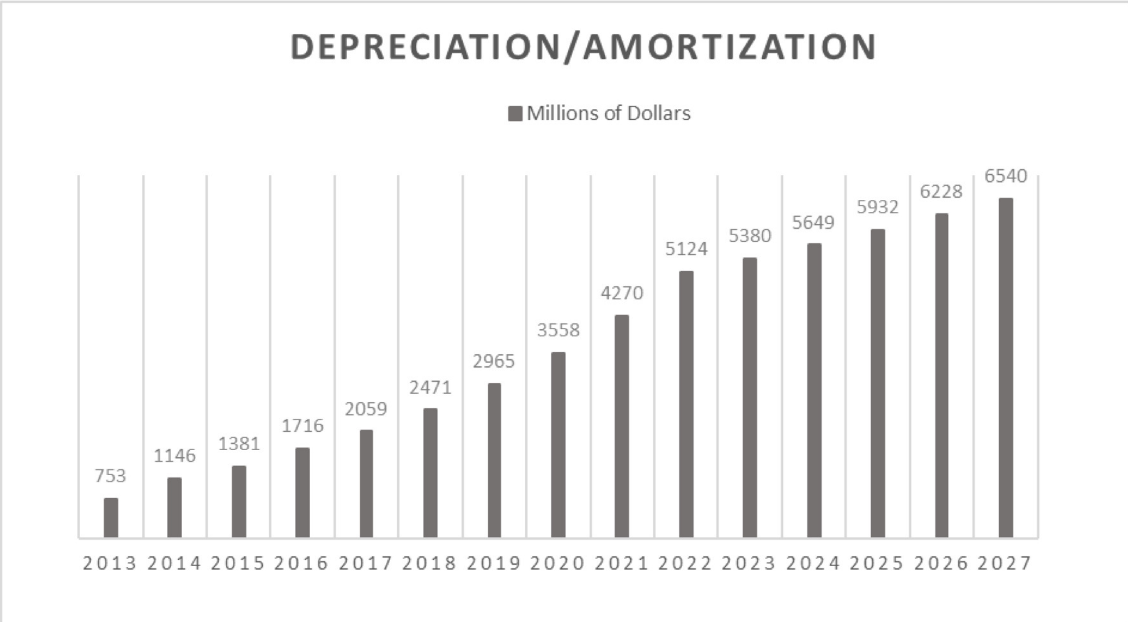
4.5 Cost of Revenue Forecast and Historical Values



4.6 R&D Expenses Forecast and Historical Values



4.7 Depreciation and Amortization Forecasts and Historical Values

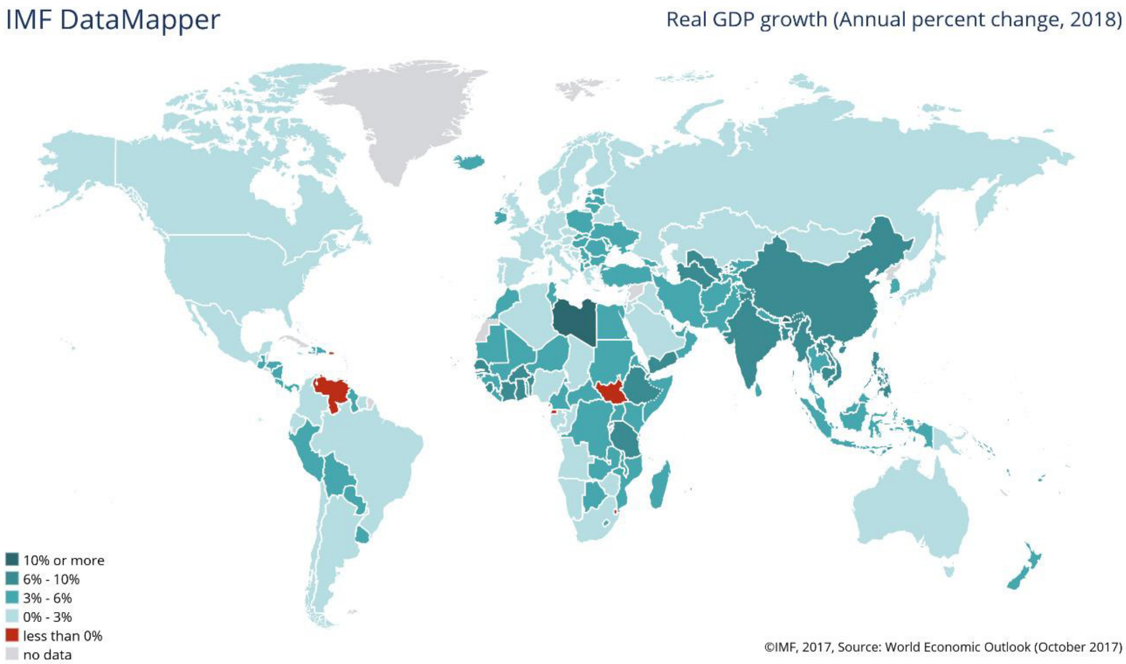


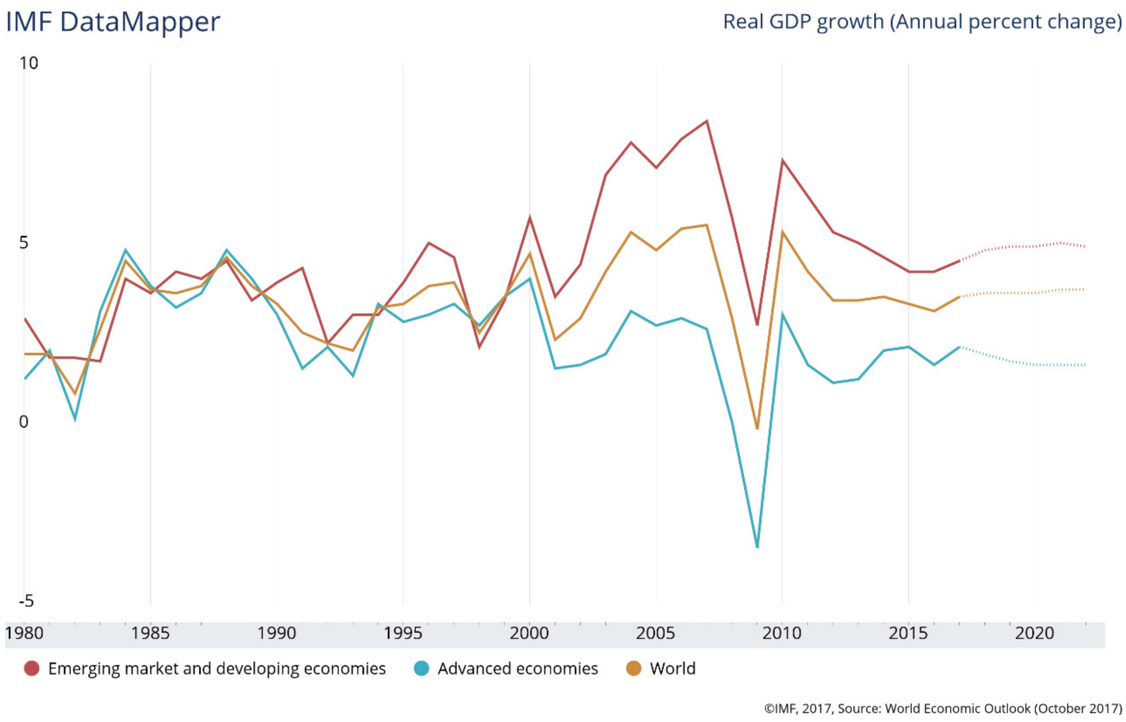
4.8 Capex and Working Capital Changes Forecast and Historical Values

	2013	2014	2015	2016
WC changes	-649	1593	-1420	147
Capex	3588	5440	5222	8462

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
WC changes	-333	326	392	470	564	677	203	213	224	235	247
Capex	2406	2583	2774	2981	3206	3449	2598	2707	2707	2707	2707

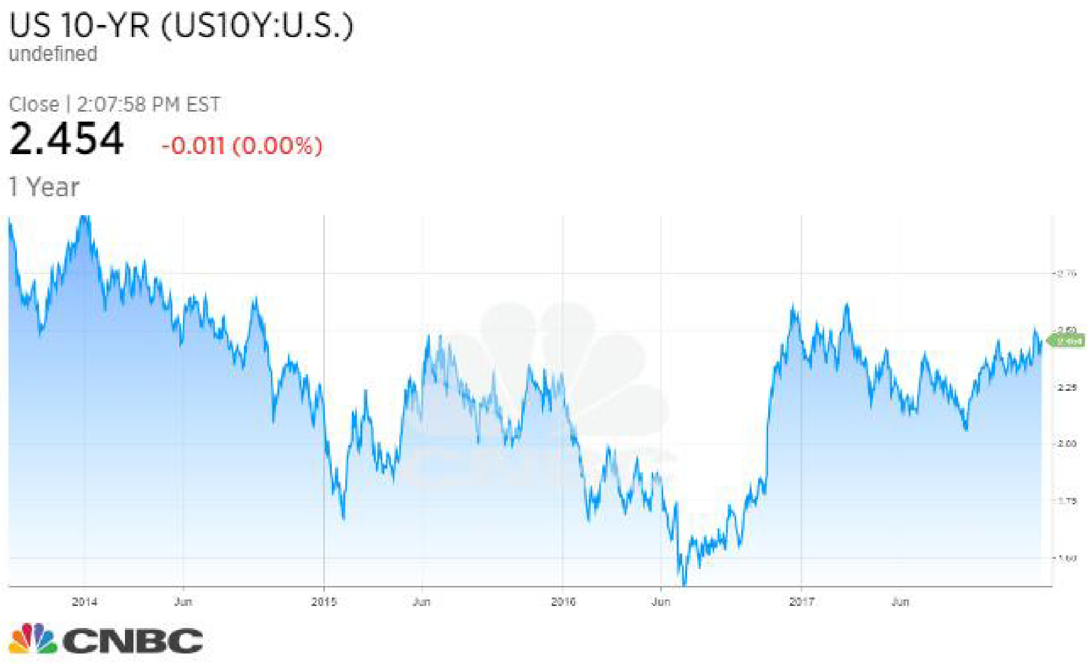
4.9 IMF World GDP Growth Forecast





Source: imf.org

4.10 US 10-year Government Bond Yield



4.11 Damodaran Country Default Spreads

Country	GDP (in billions)	Moody's rating	Adj. Default Spread	Total Risk Premium
Canada	1550,3	Aaa	0,00%	5,69%
United States	18038,6	Aaa	0,00%	5,69%
Austria	377	Aa1	0,46%	6,25%
Belgium	455,1	Aa3	0,70%	6,55%
Cyprus	19,6	B1	5,20%	12,09%
Denmark	295,1	Aaa	0,00%	5,69%
Finland	231,9	Aa1	0,46%	6,25%
France	2418,8	Aa2	0,57%	6,40%
Germany	3363,4	Aaa	0,00%	5,69%
Greece	194,9	Caa3	11,55%	19,90%
Guernsey (States of)	0,5	Aa1	0,46%	6,25%
Iceland	16,6	A3	1,39%	7,40%
Ireland	283,7	A3	1,39%	7,40%
Isle of Man	7,4	Aa1	0,46%	6,25%
Italy	1821,5	Baa2	2,20%	8,40%
Jersey (States of)	1	Caa1	8,66%	16,35%
Liechtenstein	6,7	Aaa	0,00%	5,69%
Luxembourg	57,8	Aaa	0,00%	5,69%
Malta	9,7	A3	1,39%	7,40%
Netherlands	750,3	Aaa	0,00%	5,69%
Norway	388,6	Aaa	0,00%	5,69%
Portugal	199	Ba1	2,89%	9,24%
Spain	1199,1	Baa2	2,20%	8,40%
Sweden	494,6	Aaa	0,00%	5,69%
Switzerland	670,8	Aaa	0,00%	5,69%
Turkey	717,9	Ba1	2,89%	9,24%
United Kingdom	2858	Aa1	0,46%	6,25%

4.12 Moody's Baa Corporate Bond Yield

Source: Federal Reserve Bank of St. Louis

4.13 Damodaran Default Probabilities

	Years After Cohort Formation Date																			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Aaa	0.00	0.00	0.00	0.03	0.11	0.18	0.27	0.36	0.45	0.56	0.66	0.78	0.90	0.97	1.04	1.12	1.22	1.25	1.25	1.25
Aa	0.01	0.02	0.05	0.12	0.19	0.29	0.38	0.46	0.51	0.58	0.65	0.76	0.92	1.06	1.16	1.29	1.44	1.58	1.74	1.91
A	0.02	0.10	0.24	0.37	0.51	0.67	0.83	1.01	1.22	1.42	1.63	1.82	2.02	2.21	2.49	2.81	3.17	3.53	3.88	4.20
Baa	0.18	0.53	0.98	1.52	2.06	2.60	3.13	3.65	4.23	4.89	5.50	6.17	6.85	7.56	8.24	8.84	9.41	9.97	10.44	10.91
Ba	1.23	3.31	5.75	8.26	10.57	12.65	14.48	16.28	18.05	19.86	21.62	23.41	25.15	26.82	28.29	29.78	31.14	32.17	33.15	33.97
B	5.65	12.35	18.65	24.09	29.06	33.50	37.47	40.71	43.59	46.12	47.56	48.77	49.65	50.51	51.26	51.77	51.96	52.12	52.12	52.12
Caa-C	21.12	33.53	43.47	51.01	56.52	61.05	64.58	68.50	71.98	74.72	75.16	75.16	75.16	75.16	75.16	75.16	75.16	75.16	75.16	75.16

Sample Period: 1970-2005, monthly cohort spacing

4.14 Citi Research Equity Team Recommendation

Buy	**1**
Price (27 Jul 17 19:59)	US$1,014.54
Target price	US$1,200.00
from US$1,220.00	
Expected share price return	18.3%
Expected dividend yield	0.0%
Expected total return	**18.3%**
Market Cap	US$484,925M

4.15 Citi DCF Method

Figure 3. 10-year DCF Price Target Calculation

DCF-based Price Target Calc	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
N.A. Retail Revenue	118,289	138,542	158,112	177,095	196,232	215,316	234,163	252,609	270,518	287,779	304,306
+ Int'l Retail Revenue	63,586	74,062	85,044	96,393	107,970	119,641	131,281	142,775	154,026	165,254	176,396
+ AWS Revenue	22,987	29,383	36,085	42,959	49,915	56,986	64,051	70,998	77,929	84,776	91,480
= Total Revenue	**204,862**	**241,986**	**279,241**	**316,448**	**354,117**	**391,944**	**429,494**	**466,383**	**502,474**	**537,809**	**572,181**
x Adj. EBITDA margin	13%	14%	15%	17%	17%	18%	19%	19%	20%	20%	20%
= Adj. EBITDA	**26,370**	**34,333**	**43,200**	**52,294**	**61,285**	**70,485**	**79,841**	**89,081**	**98,263**	**107,309**	**116,377**
- Taxes	(1,843)	(2,921)	(4,318)	(5,842)	(7,367)	(8,996)	(10,726)	(12,459)	(14,220)	(16,292)	(18,116)
- Capex (fixed assets)	(10,572)	(12,004)	(13,573)	(15,223)	(16,859)	(18,463)	(20,017)	(21,504)	(22,916)	(24,259)	(25,523)
- Finance/capital lease repmts	(8,292)	(10,998)	(13,495)	(15,860)	(18,122)	(20,319)	(22,453)	(24,508)	(26,467)	(28,313)	(30,044)
+ Chg in w orking capital	5,289	6,417	5,976	5,963	6,057	6,118	6,129	6,085	6,000	5,922	5,815
= Unlevered free cash flow	**10,951**	**14,827**	**17,791**	**21,331**	**24,995**	**28,824**	**32,774**	**36,696**	**40,660**	**44,366**	**48,510**
+ Terminal Value	0	0	0	0	0	0	0	0	0	0	989,206
= Total free cash flow	**10,951**	**14,827**	**17,791**	**21,331**	**24,995**	**28,824**	**32,774**	**36,696**	**40,660**	**44,366**	**1,037,716**
/ Shares Outstanding	508	513	521	529	536	544	552	560	568	575	582
= FCF per share	22	29	34	40	47	53	59	66	72	77	1,783
Discounted FCF/Share	21	26	29	31	34	36	37	38	39	39	836

DCF Assumptions	
Year	10.5
Terminal EBITDA Multiple	8.5x
Terminal FCF Multiple	20x
Discount Rate	7.5%

Source: Citi Research

Price Target Calculation (NPV of FCF/Share)	
Enterprise Value Per Share	$1,144
(+) Net Cash per Share	$56
= Price Target	**$1,200**

AMZN.O: Fiscal year end 31-Dec **Profit & Loss (US$m)**	**2015**	**2016**	**2017E**	**2018E**	**2019E**
Sales revenue	107,007	135,987	168,888	204,862	241,986
Cost of sales	-71,651	-88,248	-107,140	-127,319	-147,791
Gross profit	35,356	47,739	61,748	77,543	94,195
Gross Margin (%)	33.0	35.1	36.6	37.9	38.9
EBITDA (Adj)	**10,805**	**15,444**	**18,965**	**26,370**	**34,333**
EBITDA Margin (Adj) (%)	10.1	11.4	11.2	12.9	14.2
Depreciation	-6,281	-8,117	-11,146	-14,766	-18,308
Amortisation	0	0	0	0	0
EBIT (Adj)	**4,524**	**7,327**	**7,819**	**11,604**	**16,025**
EBIT Margin (Adj) (%)	4.2	5.4	4.6	5.7	6.6
Net interest	-411	-383	-407	-480	-508
Associates	0	0	0	0	0
Non-op/Except	-254	89	185	0	0
Pre-tax profit	**1,568**	**3,892**	**3,005**	**5,265**	**8,346**
Tax	-951	-1,425	-1,181	-1,843	-2,921
Extraord./Min.Int./Pref.div.	-21	-96	-2	0	0
Reported net profit	**596**	**2,371**	**1,822**	**3,422**	**5,425**
Net Margin (%)	0.6	1.7	1.1	1.7	2.2
Core NPAT	2,298	4,425	4,470	7,231	10,086

Cashflow (US$m)	**2015**	**2016**	**2017E**	**2018E**	**2019E**
EBITDA	8,514	12,303	14,373	20,510	27,162
Working capital	2,556	3,916	3,581	5,289	6,417
Other	969	1,052	3,278	3,331	3,510
Operating cashflow	**12,039**	**17,271**	**21,232**	**29,130**	**37,090**
Capex	-4,588	-6,736	-9,631	-10,572	-12,004
Net acq/disposals	-1,862	-3,140	-2,305	0	0
Other	0	0	0	0	0
Investing cashflow	**-6,450**	**-9,876**	**-11,936**	**-10,572**	**-12,004**
Dividends paid	0	0	0	0	0
Financing cashflow	**-3,761**	**-3,594**	**-6,041**	**-11,952**	**-11,404**
Net change in cash	**1,454**	**3,590**	**3,728**	**6,605**	**13,682**
Free cashflow to s/holders	**7,451**	**10,535**	**11,600**	**18,557**	**25,086**

4.16 Citi Multiples Approach

Price: US$1,014.54; TP: US$1,200.00; Market Cap: US$484,925m; Recomm: Buy					
Valuation ratios	**2015**	**2016**	**2017E**	**2018E**	**2019E**
PE (x)	nm	nm	nm	71.3	51.6
PB (x)	35.3	24.9	17.7	13.0	8.9
EV/EBITDA (x)	43.9	30.4	24.5	17.4	13.1
FCF yield (%)	1.5	2.1	2.3	3.6	4.8
Dividend yield (%)	0	0	0	0	0
Payout ratio (%)	0	0	0	0	0
ROE (%)	4.9	14.5	7.8	10.5	11.6

4.17 Citi Growth Rates Forecast

Growth rates	2015	2016	2017E	2018E	2019E
Sales revenue (%)	20.2	27.1	24.2	21.3	18.1
EBIT (Adj) (%)	150.2	62.0	6.7	48.4	38.1
Core NPAT (%)	132.9	92.5	1.0	61.8	39.5
Core EPS (%)	131.0	88.4	-0.4	59.7	38.0

5. References

In this section every article, book and website used in the development of this dissertation will be posted below.

5.1 Books

Damodaran, A, 2002, Investment Valuation (Second Edition)

Damodaran, A, Damodaran on Valuation

Graham, Benjamin, The Intelligent Investor

5.2 Articles

Damodaran, A, “The Adjusted Present Value Approach”

Damodaran, A, “Country Risk: Determinants, Measures and Implications (2016)”

Vogal, Mark, “Twink Twice Before Including Deferred Tax Assets and Liabilities in Working Capital Calculations”

Vatrenjak, Aida, “Present Value Measurement- discount rates research”

Fernández, P (2001), “Valuation using Multiples”

Fernández, P (2004), “80 Errors in Company Valuation”

Fernández, P (2008), “Levered and Unlevered Beta”

Lee, Liang & Miglo, “Capital Structure of Internet Companies”

5.3 Websites

News:

https://www.ft.com/

https://www.bloomberg.com/europe

https://www.invespcro.com/blog/global-online-retail-spending-statistics-and-trends/

https://www.srsacquiom.com/resources/think-twice-before-including-deferred-tax-assets-and-liabilities-in-working-capital-calculations-2/

Charts/Data:

http://pages.stern.nyu.edu/~adamodar/

http://phx.corporate-ir.net/phoenix.zhtml%3Fc%3D97664%26p%3Dirol-irhome

http://www.morningstar.com/

https://www.moodys.com

https://www.stock-analysis-on.net/

http://www.nasdaq.com/

https://ycharts.com/

http://www.imf.org/external/index.htm

https://www.federalreserve.gov/