The Home Depot Equity Valuation

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Research Note

The Home Depot – Leading the Market

The Home Depot is the largest home improvement retailer globally, with annual revenues above $80 billion. The company provides services and sells a wide variety of products in its stores and e-commerce channel: building materials, home improvement products and lawn and garden products. With a total of 2269 stores spread in three countries (U.S.A., Canada and Mexico), the American market represents around 90% of total revenues. The market in the U.S.A. is highly concentrated with The Home Depot and Lowe's (its direct competitor) having more than 50% of market share.

As the home improvement industry is highly correlated with the housing market and the macroeconomic environment, the company struggled with the recession as both home sales and remodeling stalled. But the company's strategy of linking stores with online channels, focusing on customer service, product authority and disciplined capital allocation have been driving sales and thus, the company has been regaining growth.

As a result of their strategy and showing a great ability to adapt to macroeconomic environment and industry challenges, the company presented a CAGR of 5% between 2011 and 2014 and continues to be the top player in the market.

The Home Depot proved to be a mature firm in terms of its operations and its strategy, by deciding to improve efficiency, productivity and its online channels instead of expanding internationally as its direct competitor Lowe's.

Stock Price Performance

After the financial crisis, that highly affected its operations, the company managed to continue to generate profits being the leader of the market. HD's stock price has been performing very well, registering its higher value at January 29th of 2015 ($106,50).

Recommendation:

BUY

HD US Equity

January 30th 2015, Portugal

Market Price at date of valuation

$103,34

Shares Outstanding: 1.307.000

Valuation Target

Firm Value: 195.135.617

Market Cap: 153.348.104

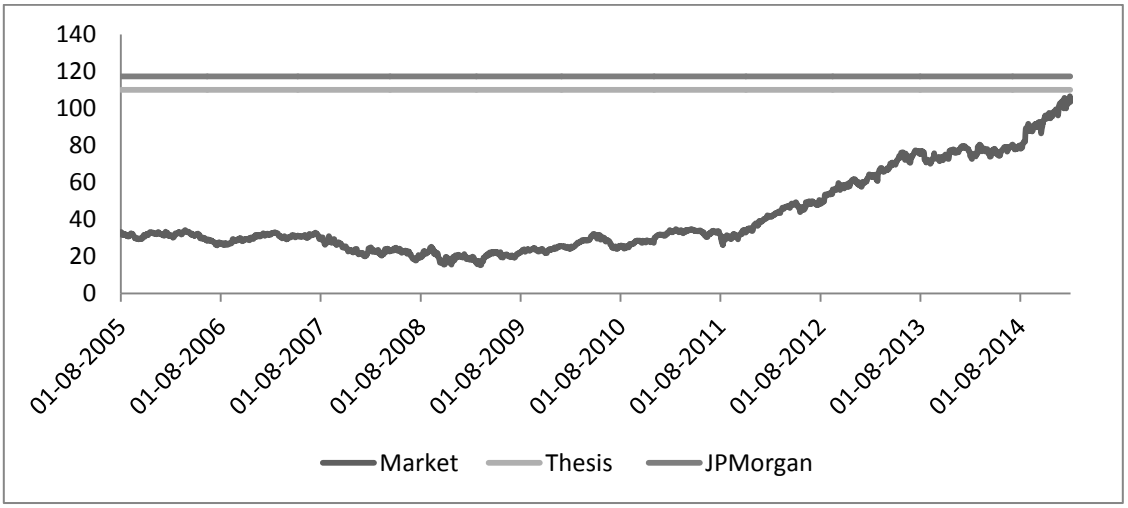
Price: $117,33

JP Morgan Valuation

Date: February 15th 2015

Target Price: 110

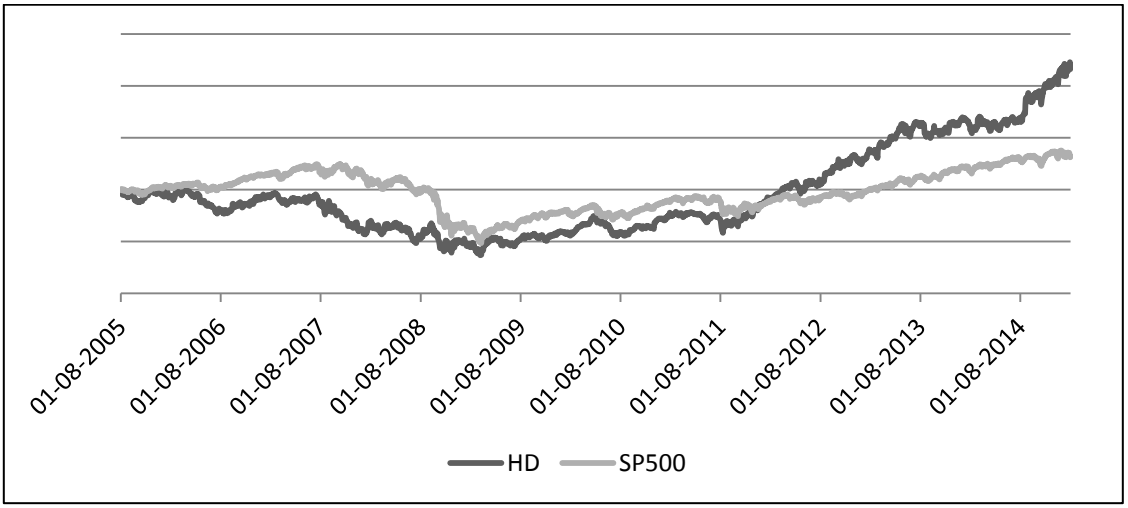
Graphic 1 – HD's Historical Price versus Target Prices



Source: Bloomberg and own calculations

After analyzing the American index S&P500, one can see that even though the company suffered more with the crisis, after that was able to recover and performing better than the benchmark.

Graphic 2 – HD's Returns and SP500 Index

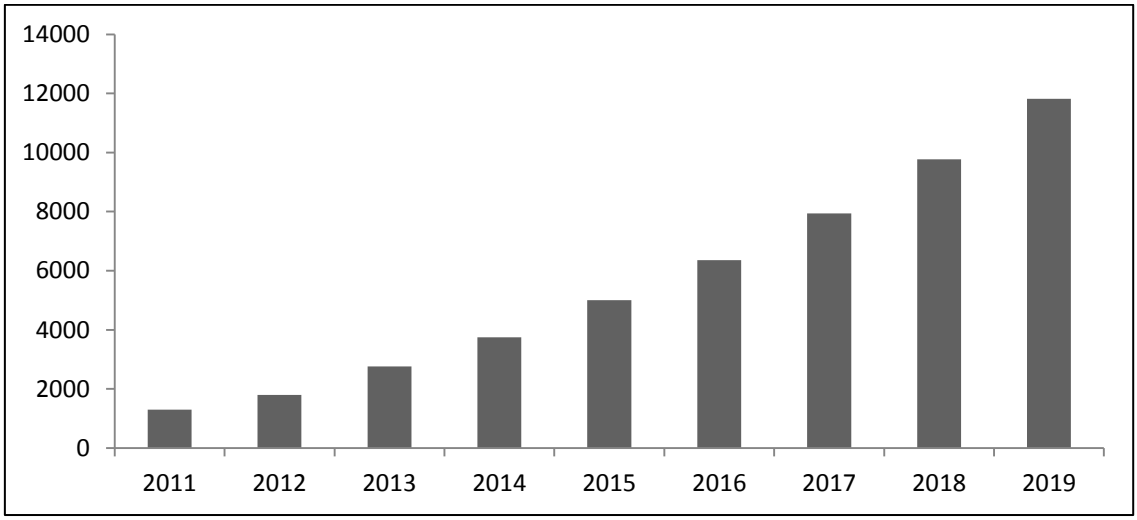


Source:Bloomberg

Financial Drivers

Revenues have been growing consistently, with online sales growing at a highly rate although still account for a small percentage of total revenues.

Graphic 3 – Home Depot's Online Sales



Source: Company Reports and own calculations

It is expected that store sales grow steadily while online sales keep growing reaching 10% of total revenues.

Table 1 – Home Depot's Income Statement (in $ millions)

	2014	*2015E*	*2016E*	*2017E*	*2018E*	*2019E*
Revenues	83176	88128	93511	99327	105586	112286
Stores	79433	83124	87156	91383	95816	100463
Online	3743	5004	6355	7944	9771	11823
Gross Profit	28954	30470	32331	34342	36506	38822
EBITDA	12120	9995	10630	11317	12056	12847
EBITDA Margin	*15%*	*11%*	*11%*	*11%*	*11%*	*11%*
Depreciation	1651	1695	1799	1911	2031	2160
EBIT	10469	13725	14564	15469	16444	17488
EBIT Margin	*13%*	*16%*	*16%*	*16%*	*16%*	*16%*
Net Profit	6345	8299	8831	9406	10025	10687

Source: Company Reports and own calculations

How much is The Home Depot's worth?

The Home Depot was valued by using three different methods (DCF discounted at WACC, DDM and Multiples) but the price provided by the DCF discounted at WACC was the one chosen.

Discounted Cash Flow discounted at WACC

Concerning the forecast period, it was used a five years explicit period which is believed to be the period the company needs to stabilize in terms of growth. From 2014

and until 2019, was applied a CAGR of 4,96% and afterwards a perpetuity growth of 2,33%. The WACC was computed using market values of both equity and debt and a constant capital structure over the projection period, resulting in a discounting rate of 6,03%. The price per share reached was of $117,33 proving that the company is undervalued in the market.

Dividend Discount Model.

The same assumptions regarding the forecast period were taken as in the DCF Approach. A target payout ratio of 50% was used as a result of the company's policy and the cost of equity was computed through CAPM resulting in a rate of 7,35%. A price of $71,98 was reached, which is 30% below the market price at the date of valuation. This very low result leads to the opposite conclusion of the DCF, which might be result of the model specificities and that the company is distributing less cash than it could to shareholders.

Relative Valuation

Multiples were used as a benchmark for the DCF. The peer group was created by taking into account growth, capital structure, profitability and risk, leading to the selection of four companies. EV/EBITDA and the P/E were the multiples used, providing a price per share of $80,14 and $118,35, respectively. This result goes along with the conclusion taken from DCF approach.

Abstract

The main goal of this dissertation is to value The Home Depot, which is currently the largest home improvement retailer in the world, in terms of revenues. There is still no consensus concerning the best method to value a company, although DCF is assumed to be one of the best methods. This way, The Home Depot will be valued through this approach and then compared with the relative valuation by using its peers. The dividend discount model was also applied.

The outcome resulting from the valuation approaches are then compared with one performed by the investment bank JP Morgan around the same date as this valuation. This way, given the successful strategy of The Home Depot and its leadership in the market, we find the company value to be undervalued and there is expectation that its stock price continues to rise.

Acknowledgments

This dissertation is the final step of a long and challenging journey as a student, which would be impossible to accomplish on my own, and for all of those who were a part of it I am really thankful.

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Finally, I would like to dedicate this dissertation to my grandfather Víctor, my little star in heaven, and to Carolina, my sister and best friend.

Contents

Introduction

Nowadays, valuation plays a key role in accessing how a company is performing and it is crucial to many finance jobs. It is also of extreme importance to understand how the company will perform in the future and how the market perceives its performance. It also matters when one takes investment decisions such as to buy a company's stock.

In order to perform an accurate valuation of The Home Depot, one must analyze the current literature and researchers' opinions, given that a great part of valuation is very subjective and varies given different opinions. Given that, exists no consensus on which model provide the best results, since it also depends on the characteristics of the company and the industry it operates in. This way, the first part of this dissertation concerns a review of all the relevant articles in this subject concluding which are the most suitable models to apply to The Home Depot.

The second part includes an analysis of the home improvement industry as it is of extreme importance when accessing the value of the company and an analysis of the company itself in order to perceive which are the key drivers of its value.

Afterwards, the valuation methods previously chosen were used to find the value of The Home Depot. The valuation was performed with three different methods: DCF discounted at WACC, Multiples and Dividend Discount Model.

After the valuation was done, a sensitivity analysis was computed in order to see how the key variables would impact the company if significant changes were suffered and how the company's share price and value would change.

Finally, the price per share reached through the DCF valuation was compared with the target price achieved by an Investment Bank and the main differences between both valuations were described.

Literature Review

1. Introduction

Nowadays, equity valuation plays a major role in the finance world. It is the key to understand whether an asset is fairly priced in the market and, if not, try to profit from the deviation. Investors, in general, use it to manage their portfolios and to make their resource allocation. They compare the value extracted from the model with the one priced in the market and then make their investment decisions based on that. Furthermore, companies use it to make their own investment, financing and dividend decisions (Damodaran, 2012). This way, the main goal of finance professionals is to get the true value of an asset or, in other words, the intrinsic value. This value is the one that reflects all the information available and based on perfect assumptions and the perfect model.

Although it may seem easy to value a company, it is not that straightforward. According to Pinto (2010) there are several steps when valuing a company. The first step is to know the business and the economic performance of the company. It is also crucial to take into account the industry the company is inserted in and its stage of life. Also, depending on the type of business and industry, each company has its own key variables and fundamentals that are the foundation for the projections and valuation. Secondly, it is needed to forecast the company's performance. One must not forget the importance of the assumptions used and the subjectivity directly connected. Valuation is all about projecting the future today and thus, using the wrong assumptions might have serious impact in the final value. However, when using the same assumptions, all models should arrive to the same conclusion and outcome. The third step consists on selecting the best suitable valuation model. There are many valuation tools available to be used and every once in a while new methods surge. It is also a matter of private opinion because some may argue that some models are more accurate than others. Some prefer the more traditional ones and other the more recent and sophisticated. Different models are based in different fundamentals that drive the value of the company. There are a wide variety of models, since the most traditional to the most recent or from the most basic ones to the most sophisticated. Damodaran (2012) identifies three general approaches to make valuations: Discounted Cash Flow Valuation, Relatives Valuation and Contigent Claim Valuation. The fourth step consists on transforming projections to

a valuation and the fifth and final step is to make the investment decision based on the value provided by the model.

This section aims at summarizing the most suitable models that are used to value The Home Depot.

2. Valuation Approaches

2.1 Discounted Cash Flow Approach

According to Damodaran (2012), discounted cash flow approach is the basis of all other valuation approaches. Furthermore, it was considered to be the best approach to value corporate assets in the seventies (Luehrman, 1997). The approach consists on the assumption that the present value of an asset is the sum of the expected future cash-flows the asset generates, discounted with a rate bearing the risk of the same asset. The discount rate will depend directly on the risk of the asset, meaning that riskier assets will have higher discount rates. This way, the cash flows the assets generate will diverge depending on their nature (Damodaran, 2006).

1 - $Value\ of\ Asset = \frac{E(CF_1)}{(1+r)} + \frac{E(CF_2)}{(1+r)} + \frac{E(CF_3)}{(1+r)} + \cdots + \frac{E(CF_n)}{(1+r)^n}$

Where:

$E(CF_t)$is the expected future cash flow in period t;

$r$is the discount rate including the risk that the asset bears;

$n$is the life period of the asset.

Furthermore, there are three distinct ways of using DCF. The first one is to value just the equity of a company; the second one is to value the entire company; and the third one is to value the company by parts, first just the operations and then adding the effects of debt and other claims. The cash flows and discount rates used vary among them. The three aproaches are directly linked to the following models: free cash flow to the firm discounted at WACC (valuing the entire firm); dividend discount model (valuing the equity stake) and adjusted present value (valuing by parts).

Although DCF is assumed to be the most simple and easiest approach to apply, Damodaran (2012) argues that it gives a more accurate output if the asset's cash flows

are positive and forecasted based on reliable information and if the risk associated can be better measured by a proxy. Furthermore, Luehrman (1997) considers that a valuation would be better performed by valuing separately the operations, opportunities and ownership claims of a company. In this sense, DCF has as its disadvantage the fact that values the whole business and thus, is not possible to address specific problems of the company separately.

2.2 Free Cash Flow to the Firm discounted at WACC

The free cash flow to the firm is the cash flow available to the company's investors after all operating expenses being paid and all the necessary investments in working capital and fixed capital being made. The method consists in valuing the whole business by discounting the expected future free cash flow to the firm at a weighted average cost of capital (WACC).

$$2 - WACC = \frac{E}{E+D}K_e + \frac{D}{E+D}K_d(1-t)$$

Where:

Ke is the required return to equity;

Kd is the cost of debt;

T is the effective tax rate applied to earnings;

D and E are both debt and equity in market values.

The WACC takes into consideration both the cost of equity and debt weighted by the market value of equity and debt. However, the capital structure might change over time which means WACC can change over time too. To overcome this issue, instead of using the current capital structure, is often used a target capital structure (Pinto, 2010). Also, by using this method it is subjacent the tax benefits of debt and the additional risk associated with higher leverage. Luehrman (1997) also considers that both equity and debt costs are opportunity costs that include time value and risk premium.

This model, as an extension of DCF approach, is easy and simple to use. However, Luehrman (1997) argues that it became obsolete and that does not address valuation problems distinctly. Also, the author states that WACC is not the best choice because, in most of the real world cases, several periodic adjustments are required in terms of tax

shields, issue costs, exotic debt securities or dynamic capital structures. In this sense, as the company's capital structure, tax position and fund-raising strategy become more complex, the easier it is to misestimate the WACC and to make mistakes. Another problem is that some professionals use book values to generate the weights in the WACC instead of using market values, which are the correct ones (Luherman, 1997; Fernandez, 2013).

2.3 Adjusted Present Value (APV)

Managers often need to value a specific product, project or line of business or simply decide whether to acquire new equipment or not. This way, they must know how much the expected cash flows associated are worth after all the investments made. In order words, sometimes is necessary to value just the operations of a company, which might become a valuation problem.

This way, the APV approach makes a distinction between the effects of debt financing in the value and the value of the assets belonging to the business. The main difference here is that, instead of the effects of debt financing being captured by the discount rate (WACC), this approach values the operational assets and the benefits/costs of debt separately.

The Adjusted Present Value Method (APV) consists on valuing the firm as if it was debt free and then, adding debt by taking into account both the costs and benefits of borrowing debt. The costs consist on the expected bankruptcy costs and the benefits on the tax shield obtained by using debt as a form of finance.

3 - $Firm's\ Value = Value\ of\ business\ with\ 100\%\ equity\ financing + Present\ Value\ of\ Expected\ Tax\ Benefits\ of\ Debt - Expected\ Bankrupcy\ Costs$

To value the firm as if it was fully equity financed, the expected future cash flows to the firm are discounted at the unlevered cost of equity. A growth rate should also be considered if the cash flows are expected to grow constantly in perpetuity.

4 - $Value\ of\ Unlevered\ Firm = \frac{FCFF_0(1+g)}{\rho_u - g}$

Where:

$FCFF_0$ is the current after-tax operating cash flow to the firm;

ρ_u is the unlevered cost of equity and g is the expected growth rate.

5 - $Value\ of\ Tax\ Benefits = \sum_{t=1}^{t=\infty} \frac{Tax\ Rate_t * Interest\ Rate_t * Debt_t}{(1+r)^t}$

In order to compute the value of tax shields several issues have to be considered. One is which tax rate to use. From the company's books two tax rates can be derived: the effective tax rate and the marginal tax rate. The effective tax rate is computed by dividing the taxes due by the taxable income and the marginal tax rate is the rate at which the last or the next dollar of income was or will be taxed. Damodaran (2002) states that, since interest payments taxes are deducted at the margin, the correct tax rate to use is the margin tax rate.

Other important issue is whether to consider tax rate and level of debt constant over time. If we do so, then the tax savings become perpetuity. Fernandez (2013) argues that firms must be valued differently depending on their debt strategy, either to keep a constant debt to equity ratio or to reach a target.

The present value of expected bankruptcy cost can be computed by using the following formula:

6 - $Present\ Value\ of\ Expected\ Bankrupcy\ Cost = (Probability\ of\ Bankrupcy) * (Present\ Value\ of\ Bankrupcy\ Cost)$

To compute the present value of expected bankruptcy cost is not an easy task as both inputs have to be estimated indirectly. Probability of bankruptcy can be estimated through a bond rating at each level of debt and then estimate empirically the probability of default at each level. Another way to do so is by using a statistical approach based on the firm characteristics seen at each level of debt. The bankruptcy cost can be estimated by studying real bankruptcies from the past and, according to past research, direct costs are smaller relative to the firm's value. It was also found that the indirect costs (costs of distress) are much higher.

The greatest advantage of APV is that it distinguishes the different effects of debt into different parts of the business. In addition, it not only shows if the net present value of a project is greater than zero, but also how much value is added by each part (Damodaran, 2012). If this is not the goal, and if the WACC is applied properly then there is no value added by using APV instead of WACC (Luehrman, 1997). Furthermore, Damodaran

(2012) considers that APV provides more flexibility by considering not only the direct costs of bankruptcy but also the indirect ones. Luehrman (1997) also shares the opinion that APV is a very flexible approach.

On the other side, it is very hard to estimate probabilities of default and bankruptcy costs. Given this difficulty, when using the APV, many analysts simply ignore those costs leading to the wrong conclusion that raising the level of debt will increase the firm's value (Damodaran, 2002).

Although it is a very useful approach, it only makes sense to use if the company in question is planning to make significant changes in the capital structure. This way, this method will not be applied to value The Home Depot.

2.4 Dividend Discount Model

Dividend Discount Model focuses on the equity holders of a business and consists on discounting the expected future cash flows shareholders would receive, which the model assumes to be only dividends. According to Damodaran (2002), this is the simplest model to value the equity of a company.

When an investor buys a stock of a company, he is expecting to receive, during the time he holds the stock, dividends and in the end the price of the stock. Then, the base behind this model is that the price of a stock today is determined by its future dividends and forever.

7 - $Value\ of\ stock\ per\ share = \sum_{t=1}^{t=\infty} \frac{E(DPS_t)}{(1+k_e)^t}$

Where:

$E(DPS_t)$are the expected dividends per share in period t;

$k_e$is the cost of equity.

This way, the model depends only on the expected dividends, implicit in earnings and payout ratios, and in the cost of equity, the required rate of return on the stock. As this model relies mostly on the future growth, different versions of the model arise based on different assumptions. According to Damodaran (2002), there are two versions of the Dividend Discount Model that can be used: The Gordon Growth Model (or Stable Growth Model) and the Two-stage Dividend Discount Model.

The Gordon Growth Model is applied when the firm is in the steady state (stable growth) and its dividends are growing at a sustainable rate forever.

7 - $Value\ of\ stock = \frac{DPS_1}{k_e - g}$

Where:

DPS_1 are the expected dividends in the next period;

k_e is the required rate of return for equity investors;

g is the growth rate of dividends forever.

According to Damodaran (2012) this model is very helpful and simple when valuing stocks but has some limitations because it can only be applied to companies with stable growth and with dividend payout policies that would be maintain in the future. This is because if a firm pays less than it can to shareholders, then the model will underestimate the value of the stock. Furthermore, and according to the same author, the measures of performance other than the dividends' growth rate, should also grow at the same rate as dividends, otherwise inconsistencies will arise.

Also very important is to decide what is the most reasonable rate to use. Damodaran (2012) also states that this rate should be equal or less than the rate at which the economy of the country where the company operates its business grows. But even with this assumption, opinions might diverge since there is always some degree of uncertainty associated with expected inflation and real growth in a given economy. Also, this model is highly dependent on the growth rates and its inputs which, when used wrongly, might lead to incorrect conclusions especially because as the growth rate converges to the discount rate, the stock price goes to infinity.

Contrary to the Gordon Growth Model, which assumes a stable growth rate, the Two-stage Dividend Discount Model assumes two stages of growth: the first stage when the rate is not stable and, after the company reaches the steady state, a stable rate that is expected to remain in the long term. The growth rate of the first stage is expected to be higher than the one of the stable stage, but the model also allows the opposite to happen (Damodaran, 2002).

8 - $Value\ of\ Stock = \sum_{t=1}^{t=n} \frac{DPS_t}{(1+k_{e,hg})^t} + \frac{\frac{DPS_{n+1}}{(k_{e,st}-g_n)}}{(1+k_{e,hg})^n}$

Where:

DPS_t are the expected dividends per share in year t;

$k_{e,hg}$ and $k_{e,st}$ are the costs of equity for the high and the stable growth periods respectively;

$\frac{DPS_{n+1}}{(k_{e,st}-g_n)}$ is the price or the terminal value at the end of year n;

g_n the growth rate in steady state and forever after year n.

Apart from the difference in the growth rates, all the other assumptions taken in the Gordon Growth Model stand here. According to Damodaran (2002), this version also has some limitations since it is hard to predict the length of the extraordinary growth rate and it is somehow unrealistic to assume the rate will instantly decrease to a stable rate.

Furthermore, and according to Damodaran (2006), the Dividend Discount Model is, in practice, the oldest discounted cash flow model but has some drawbacks. For some analysts, the firm's value driven from the model is far too conservative when compared to other models. Companies have different payout policies and the model yields more accurate values if the company distributes all its free cash flow to equity to investors. This means that, companies that accumulate cash or pay less than they can in dividends will have their company undervalued. On the other hand, Farrell (1985) states that the model is very useful at estimating the returns of the stock market, measuring how attractive the individual stocks are in relative terms, measuring the sensitivity of common stocks to interest rates and finally, understand the impact of inflation on common stock. Along with the author, Foerster et al. (2005) found evidence that dividend-based models perform well at explaining actual prices and that those models have a better performance than earnings-based models.

3. Economic Value Added Method

The economic value added method is based on the economic value added measure, which values the amount of dollars created by an investment or portfolio of

investments. It can be calculated by multiplying the excess return made on an investment (return on capital invested minus the cost of capital) by the capital invested.

According to Damodaran (2002), the Economic Value Added (EVA) is not more than an extension of the Net Present Value (NPV) Rule since the NPV measures the present value of the expected cash flows from an investment, after all investment needs being done. Thus, investments with positive NPV's will add value to a firm while investments with negative NPV's will decrease its value.

9 - $NPV = \sum_{t=1}^{t=n} \frac{EVA_t}{(1+k_c)^t}$

Where:

EVA_t is the economic value added by a project in year t and the project has a life of n years.

Beginning with this relation, it is possible to get to the value of the firm by using its assets in place and its expected future growth.

10 - $Firm\ Value = Capital\ Invested_{Assets\ in\ Place} + \sum_{t=1}^{t=\infty} \frac{EVA_{t,Assets\ in\ Place}}{(1+k_c)^t} + \sum_{t=1}^{t=\infty} \frac{EVA_{t,Future\ Projects}}{(1+k_c)^t}$

As given by this equation, the value of the firm is the sum of capital invested in assets in place, the present value of the economic value added by those assets and the expected economic value from future investments.

In order to measure how much capital was invested in the assets in place of the company, one might estimate the market value of those assets but, given its difficulty, it is often used the book value of capital as a proxy and the same adjustments made in DCF approach, such as the capitalization of R&D expenses, are applied in this method (Damodaran, 2002). Also, the estimation of the cost of capital is the same as in the DCF approach, using market values and not book values.

According to Damodaran (2002) the biggest limitation of this method is that it is hard to measure the expected future economic value added and thus, wrong estimations might lead to very different valuations.

4. Relative Valuation Approach

Relative valuation consists on valuing assets based on the price of similar assets in the market, and by using common variables such as revenues, earnings or cash flows. Contrary to other approaches, this one relies more on the market by assuming that, on average, it is correct in pricing stocks. Damodaran (2012) considers price-earnings, book value and price to sales as the most widely used multiples.

When using this approach, there are two essential factors to consider (Damodaran, 2002). The first is that to use relative valuation prices must be standard and so, prices are converted into multiples of sales, earnings or book values. The second is to find a comparable firm because it is very hard, not to say impossible, to find two identical companies that run the same business and have similar growth, risk and cash flows.

As prices must be standardized, it can be done relative to the earnings or revenues, to the book value, to the replacement value or to performance measures specific of each industry and sector. When based on earnings, the most used multiple is the price/earnings ratio that can be computed by using current earnings per share giving a current multiple, earnings over the last four quarters giving a trailing multiple or expected earnings per share in the following year giving a forward multiple. This multiple is most useful when used from the point of view of a stock's buyer. On the other hand, if one wants to value the whole business and not just the equity part, should use the EBITDA (earnings before interests, taxes, depreciation and amortization) instead of earnings. Furthermore, a lower multiple would be favorable to the buyer of a stock and it is affected by the risk, growth and cash flows generated of the company (Damodaran, 2002).

A company's value derived from accountants might largely differ from the market value. Investors often compare the market price of a company with the equity's book value to determine whether it is over or undervalued. One particular fact about book values is that they are highly affected by accounting principles and rules. The most used multiple is the price to book value and can vary significantly across industries, being mainly influenced by growth potential and investments made (Damodaran, 2002). In alternative to the book value, can also be used the replacement costs of the assets and this ratio is called Tobin's Q.

As book values and earnings are accounting figures, one may use the revenues generated by the assets. From the shareholders perspective, the multiple to use is price to sales ratio and to value the whole firm one may use the enterprise value instead of price per share. This multiple also varies across sectors and depends mainly on the profit margin of each company but is very useful when comparing companies with different accounting standards (Damodaran, 2002). Finally, other variables, such as the number of costumers can be used to compute industry specific multiples. However, these multiples have the particularity that, as they are specific of a single sector, they might over or undervalue the sector relative to the rest of the market.

According to Damodaran (2002) using multiples is very simple and intuitive but very easy to misuse. As his opinion, the main advantages of this approach are that it is easy and simple to use and that it requires way less assumptions than other approaches such as DCF. In addition, since this approach relies on relative value instead of intrinsic value, it is more likely to reflect the state of the market. In other words, the value derived will tend to be closer to the market price than other approaches. Also, if there is a large amount of companies being traded in the financial market and correctly priced the approach is very useful. Furthermore, and according to Liu (2002), multiples that result from forward earnings are good at explaining stock prices and there is evidence against different industries having different best multiples.

Goedhart et al. (2005) explains that, by using comparable companies with similar ROIC and growth expectations, forward-looking multiples and enterprise-value multiples and adjustment of enterprise-value multiples for nonoperating items, there is a better valuation.

On the other hand, Damodaran (2012) also describes some concerns. First, relative valuation is more difficult to apply to companies with very little or no revenue and with few comparable firms. In addition, multiples are easy to manipulate and the concept of ‘comparable’ firms is very subjective. Luehrman (1997) states that choosing the right multiple can be tricky. Goedhart et al. (2005) considers that a correct and well executed analysis of multiples helps making financial forecasts more precise, to understand the position of the company regarding competitors and to understand the key factors driving value in the industry. Also, the author states that the industry average is not the best proxy since companies in the same industry might have completely different expected

growth rates, return on invested capital and capital structures and the author considers that to find the right multiples, comparables must have similar expected growth rate and return on invested capital.

5. Contingent Claim Valuation

Contingent Claim Valuation or Option Pricing Models are useful and used to value assets whose value derives from other assets and whose cash flows are dependent on outside factors or events that may or may not occur (Damodaran, 2002). These models were mostly applied to traded-options but with the research and progress made in the past few years, it is possible to apply to non-traded assets (Damodaran, 2012). Assets like patents or undeveloped reserves are considered to be options and thus, valued as such.

As The Home Depot does not fit in the characteristics for this valuation, the model will not be applied.

6. EmergingMarkets

With the recent globalization and capital fast mobilization, companies tended to expand their businesses to other countries, especially to emerging markets where attractive investments and opportunities are higher. However, these kinds of markets have their own particularities and they must be considered when valuing a business.

According to Goedhart et al. (2003), risk in individual emerging markets is higher than in developed markets. The authors also state that investments in those markets are exposed to additional risks such as higher levels of inflation, changes in the exchange rate, hostile repatriation and fiscal measures, and macroeconomic and political distress. James et al. (2000) also share the same opinion. These additional risks must be considered when valuing a business present in an emerging market and different approaches might also be used. Also, when computing the cost of capital and risk premium, investors often overestimate it, leading to good projects and investments being turned down. In the authors' opinion, even though cost of capital should be higher in emerging markets than in developed ones, the difference is not that huge as investors may think. Furthermore, the authors state that the general performance of an emerging market's portfolio can be stable if investments are separated in several countries.

According to James et al. (2000), there are two ways of incorporating the additional risks of emerging markets in the valuation. One is to use a DCF model along with probability-weighted scenarios that measure a business' risks and the other is to use an additional risk premium added to the discount rate. The authors believe DCF model with probability-weighted scenarios provides a better valuation because investors are able to diversify most of the risk associated with emerging markets, most of the risk is industry specific and thus, if incorporate in the country risk premium is not taken into account the different risks each industries face. The real challenge here is to measure those risks because different perceptions might lead to very different valuations.

Even though The Home Depot has operations in an emerging market, Mexico, the volume of the operations is too small (less than 8%) to impact the overall company and thus, the company will be valued as if the company only operated in North America.

7. Other Important Issues

7.1 Terminal Value

Depending on the life stage of a company, its growth rate diverges. Firms reinvesting all their earnings are expected to grow at a higher rate than the ones who do not and, as a firm gets older, it is common for its growth rate to decrease and at some point to become equal to the economy's growth rate. The key factor is to determine when the company's growth will reach a stable stage in order to compute the terminal value. The terminal value is assumed to be a perpetuity, from the moment that the company reaches the steady state and, commonly, is assumed to grow as much as the economy. Damodaran (2012) considers that, to determine how the growth rate will behave, one must analyze the firm's size, current growth rate and competitive advantages.

As it is not possible to project cash flows forever, the common approach used is to estimate cash flows until certain point and then calculate a terminal value as shown in the formula below.

$$11 - Value\ of\ a\ Firm = \sum_{t=1}^{t=n} \frac{CF_t}{(1+k_c)^t} + \frac{Terminal\ Value_n}{(1+k_c)^n}$$

According to Damodaran (2012), there are three distinct ways of computing the terminal value. The first is to assume that the firm will liquidate all its assets in the termination year and estimate the market value of those assets but since is based in book

values does not account for the earning power of the assets. The second one is to use a multiple to earnings, revenues or book value to compute the value in the terminal year but this approach is not the best because it mixes both relative and discounted cash flow valuation. The third one and most common is to assume that the cash flows will grow at a constant rate forever. By assuming that the firm will grow at a stable rate, one can estimate the terminal value applying a perpetual growth model.

12 - $Terminal\ Value_t = \frac{Cash\ Flow_{t+1}}{r - g_{stable}}$

Although the perpetual growth model is the most used, also has some constraints specially because the stable growth rate affects significantly the terminal value and thus, a wrong rate might lead to very different results.

7.2 Risk Premium

Risk premium concerns the additional return the investors would demand for taking risky investments and thus, by being exposed to risk. Within the same logic, the risk-free rate is the rate of return investors would get by investing in riskless assets. This way, the expected return on riskier investments is measured in comparison, or in addition to the risk-free rate.

There are several models to compute the risk but all of them consider risk as the variance of actual returns around expected returns, that riskless investments are those where expected returns are always equal to actual returns and that risk should be quantified from the marginal investor perspective which holds a well-diversified portfolio. This means that, only the risk an investment adds to a diversified portfolio should be measured. Risk is composed by two components. The first is a firm-specific component and concerns the risk associated to specific investment of a firm. The second is the market component of risk that impacts all investments. The market risk is the only one that cannot be diversified and thus is the one that should be rewarded.

The most standard form of measuring risk premium is to use historical data. It consists on the comparison between the returns on stocks versus the return on a risk-free asset over a long period of time. Even though most institutions and investors use the same database to compute risk premium, some differences still arise mainly because of divergences in the time period used, in the risk-free asset to use (treasury bills or bonds), and in the computation of the average, whether arithmetic or geometric

(Damodaran, 2002). According to Damodaran (2012), when valuing long-term projects or businesses in developed markets one should use the long-term government bond rate as the risk-free rate and that the duration of the bond should be similar to those of the cash flows. Fernandez (2004) also shares the same opinion and also states that it should not be estimated historically as it is an expectation.

7.3 Betas

Betas should measure the risk that an investment adds to a well-diversified portfolio or, in other words, the exposure of a firm to market risk. In the real world the beta of an asset is estimated relative to a stock market index, instead of relative to a diversified portfolio and it is often a historical measure of risk. According to Damodaran (2012), this approach gives good results in markets such as the United States with a large and diversified stock market and huge historical returns while it does not yields good results in markets where equity represents a small part of the economy.

According to Damodaran (2012) there are three ways of estimating betas: by using historical market prices data for individual investments, by using the fundamental characteristics of the investment to estimate the betas and finally, by using accounting data.

Estimating betas by using historical data consists on regressing stock returns over market returns and is the most commonly way used.

13 - $R_j = a + bR_m$

Where a is the intercept from the regression and b the slope that corresponds to the beta of the stock.

If the beta is greater than one, then the company's risk is higher than the market risk. On the other hand, if the beta is lower than one, the company's risk is lower than the market risk. Furthermore, this approach is easy to apply to firms that have been public for a long time. It should be made based on a portfolio that included all traded portfolios but in practice it is used a proxy for the market such as a stock index like the S&P500 (Damodaran, 2002).

Still, there are some limitations of using regression betas which includes the high levels of standard errors and the noise and skewness associated with the estimation choices,

such as the market index to use and the length of the period of analysis (Damodaran, 2002).

As alternative, one may use the fundamental characteristics of a business to estimate the betas. According to Damodaran (2002), there are three key factors that determine betas: the firm's type of business, the operational leverage and the financial leverage. Finally there is a second alternative which consists in using accounting earnings instead of market prices.

7.4 Cost of Equity

As a firm can raise money from equity investors, when the latter ones invest in a company, in exchange they own the asset they buy and receive a compensation in the form of return for the risk they're taking. This way, the expected return equity investors would require for their investment includes a premium for the market risk (which is measured by betas). In other words, the cost of equity is the rate of return equity investors would demand for their investment in a company.

The cost of equity can be computed by different models but, the most suitable according to Damodaran (2012) and Koller et al. (2005) is the Capital Asset Pricing Model (CAPM), and thus the following formula should be used:

14 - $K_e = R_f + \beta_L[E(R_m) - R_f]$

7.5 Cost of Debt

A firm can also raise money by borrowing it from lenders. This way, lenders also expect to receive a return to compensate them for the risk they are taking, the default risk. This way, this expected return for the compensation of the risk taken by lenders is called the cost of debt. In other words, it is the rate at which a company can raise money. According to Damodaran (2002), it depends on the risk-free rate, the default risk of the company and the tax rate and the tax deductibility of interest payments.

There are several approaches to estimate the cost of debt. According to Damodaran (2002), the simplest one is when the firm has long-term bonds that are highly liquid and regularly traded. In this cases, the yield to maturity of those bonds are used as a proxy for the cost of debt.

When this conditions do not stand, the cost of debt can be estimated through the company's credit rating and default spread. The disadvantage of this approach is that not all the firms are rated in the market and that the bonds of a specific firm can have different ratings.

Finally and when the rating is not available, the cost of debt can be estimated by looking at the historical borrowing and from that assuming a rating based on the default spreads recently paid by the company. Furthermore, one can use a synthetic rating based on financial ratios, usually the interest coverage ratio according to Damodaran (2002):

15 - $Interest\ Coverage\ Ratio = \frac{EBIT}{Interest\ Expenses}$

8. Conclusion

The DCF discounted at WACC, the Dividend Discount Model and the Relative Valuation were the models chosen to value The Home Depot. The DCF discounted at WACC was chosen due to its importance and for being the most used among analysts. In addition, it is the one that gives a very detailed analysis of the company as all the relevant rubrics are forecasted individually. The second approach is used as the company distributes cash to shareholders in the form of dividends and intends to keep doing it in the future. The third and last approach is used to compare the performance of The Home Depot with the one of its peers and industry. Also, it is used a proxy for the Discounted Cash Flow Approach and to check its validity.

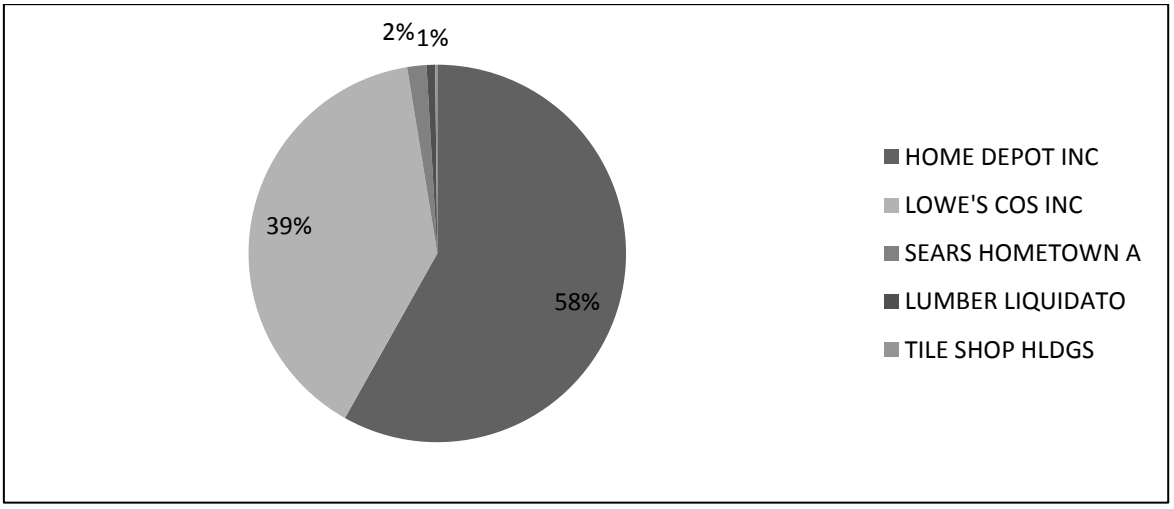
Industry Overview

In order to perform an accurate valuation, it is of extreme importance to analyze the industry The Home Depot operates in and how it is or might be affected by macroeconomic factors, other competitors and the challenges the industry faces. As it was already assumed, The Home Depot will be valued as an American company since in both Mexico and Canada has a market share of less than 10% and revenues account for less than 8% of total sales.

1. USA

The home improvement industry in the U.S.A., with a market size of around 300$billion in 2014, is characterized by a highly concentrated market share with The Home Depot and Lowe's(Home Depot's direct competitor) leading the market with 58% and 39%, respectively, of market share. The remaining are small players that do not compete directly with The Home Depot or Lowe's as their volume are much smaller, in comparison.

Graphic 4 – Market Share of Top Players (2014)



Source: Bloomberg

Furthermore, and when analyzing the role a company plays in its industry, it is important to state the relation between the industry performance and macroeconomic factors and how the latter impact the first one.

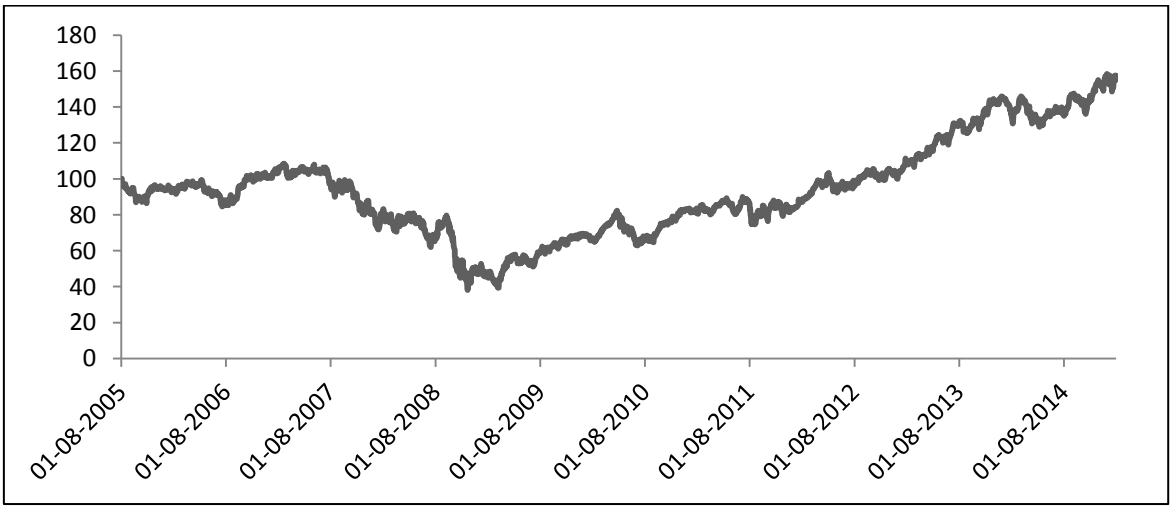
As the major drivers of home improvement industry, one can identify a few: new and existing home sales, increasing disposable income, rising consumer spending,

remodeling and renovation of houses, urbanization and middle class population (Home Improvement Research Institute).

Furthermore, the macroeconomic indicators used to analyze the industry are: residential investment as % of nominal GDP, loan performance index, total home sales (new and old) and residential construction spending.

The industry is highly dependent on the housing market and, with the financial crisis that started in the U.S.A. in 2007, the global economy was affected and the house market was severely affected, which impacted negatively the industry and as a consequence the company. Prior to that, the recovery in the U.S. housing market and construction activity led to an improvement in the home improvement industry as can be seen with the evolution of the S&P500 Retail Index.

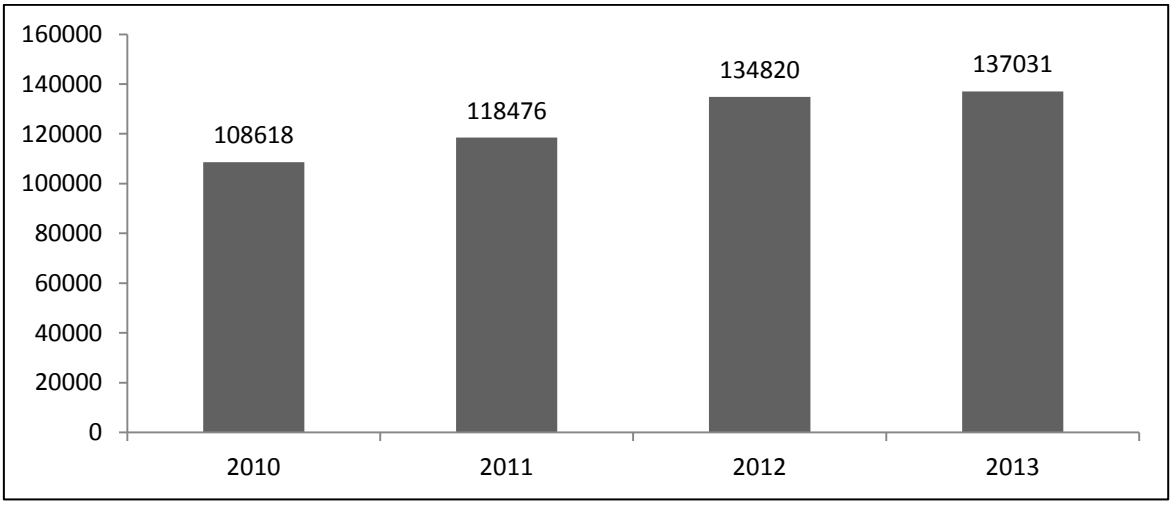
Graphic 5 – S&P500 Retail Index Historical Performance



Source: Bloomberg

As the house market is still recovering from crisis, a strong demand for home improvement is expected to rise spending on home improvement and thus increase sales in the next few years. This strong demand is mainly driven by the fact that many consumers decide to stay and remodel or expand their pre-existing houses and that exist subsidies for energy efficiency upgrades. Furthermore, a stronger job market and an increase in consumers' confidence have also been helping the recovery. Actually, for the first time since 2007, the spending in home improvement rose by almost 6billion between 2011 and 2013.

Graphic 6 – Home Improvement Spending (in $ millions)



Source: Home Improvement Research Institute

The industry might also benefit from lower energy costs, lower unemployment rates, higher stock market and housing related wealth, increased consumer credit and stable savings rate (Home Improvement Research Institute).

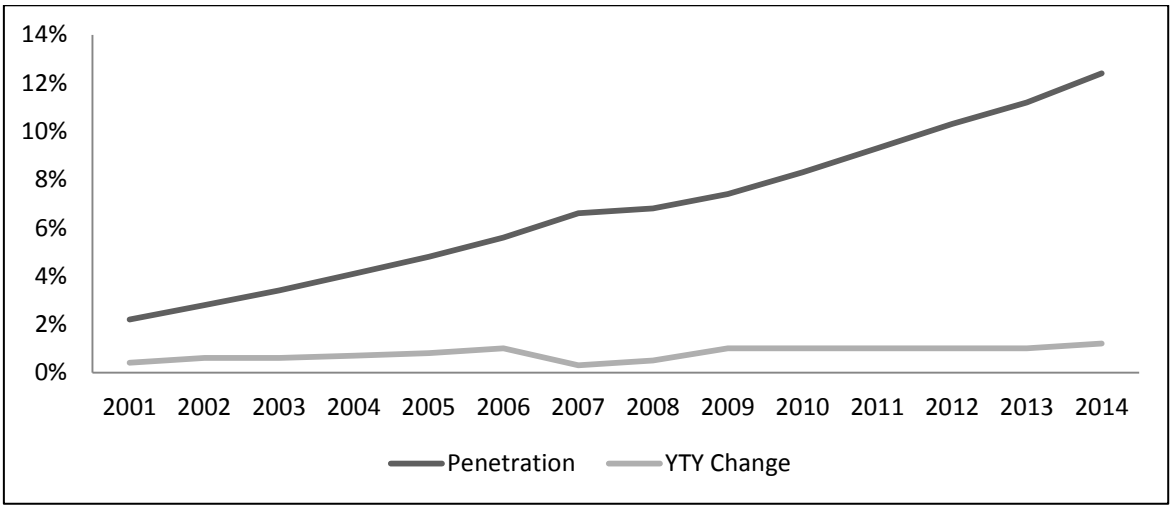
Although residential construction is still far from full recovery, home improvement industry is expected to boost consumer spending in the near future. Another factor contributing for the strengthening of the industry is the federal and state stimulus programs that encourage upgrades regarding energy-efficiency which leads households to upgrade their houses. Furthermore, and with an increase in the demand for rental property, the house owners saw the urge to reinvest in their properties in order to attract tenants.

Researchers also see some potential opportunities in the industry, regarding sustainable home improvement and energy-efficient upgrades, as stated before, which will continue to be among the fastest segments and the ageing population that will force people to improve their houses in order to live safely and comfortable.

Along with the crisis and the expected recovery in the years to come, the industry also faces some challenges. Nowadays, new product innovation, online selling and effective advertisement are the driving forces of the global home improvement retail industry complementing that, innovation in products, cost control, supply chain and management are expected to drive the industry. Technological advances in retail services is very important for companies to sustain their successful position in the industry since, as it

happens with The Home Depot, at some point it is not possible to expand more in terms of square foot.

Graphic 7 – E-commerce as % of "Core" Sales in the Retail Industry



Source: Census Bureau

As can be seen, e-commerce sales have been increasing over the years and in the past few years have been capturing about a percentage point a year of retail sales.

Furthermore, and according to the Home Improvement Research Institute which goes along with the expectation of continuation of economic recovery, home improvement sales are expected to accelerate over 2015 and 2016 with 2015 forecasted growth of 5,7% over 2014 and 4,5% between 2016 and 2019. Comparable salesare expected to grow 4,5% in 2015.

2. CANADA

As Canada is very similar to the USA, one may conclude that the same drivers and indicators apply to Home Improvement Industry.

In 2014, home improvement recorded 5.7 billion Canadian dollars in sales and the top players were Behr Process Corp and Ppg Canada Inc with a market share of 7% and 5% respectively.

The industry was also affected by the weakening of GDP and a slowdown in the housing market. All that combined with a high households' debt level and a lack of improvement in employment, led consumers to be very cautious when spending their

income on home improvement projects. Despite that, the industry continues to grow but at a slower path.

But even though, the industry continued to grow, but at a slower path due to numerous factors such as a substantial rise in urbanization and a trend of improving houses in order to make them more valuable.

3. MEXICO

Home improvement industry in Mexico is quite different than USA and Canada, in terms of its economy and the consumers' characteristics. Demand for home improvement products has historically been negatively affected by the relatively weak state of the local Do-It-Yourself culture that characterizes the industry's supply of products and services. Consumers have easy access to cheap labor, which means they prefer to hire someone to do the job, than doing themselves. Nowadays, and helped by the emergence of retail chains specialists like The Home Depot, it is possible to observe a shift in that trend with sales revenues growing at a steady rate over the recent past.

The market is still very fragmented with no top player in the industry, but many small ones competing in all categories. Still, and according to the Euromonitor, the top playersareConsorcioComex, with 7% market share and TruperHerramientas SA with 5% of market share.

Given all, the industry has space to grow, probably not in the near future but in the long-term, as the consumers' attitude is starting to change and macroeconomic factors such as population growth and economic improvements are expected to raise the number of households and thus, impact positively the industry. It also expected that, in the long term, retail chain specialists will lead the market.

Company Overview

The Home Depot, Inc. is an American based company created in 1978, public since 1981and currently traded in the American stock market (NYSE), but also included in the Dow Jones Industrial Average and the Standard & Poor's 500 Index. At January 2015, its top shareholders were: Capital Group Companies Inc (10,46%); Blackrock (6.27%) and Vanguard Group Inc. (5,62%), and was controlled by Investment Advisors (89,76% of capital structure). Its market capitalization was $143,37 billion.

The company is the largest home improvement retailer, based on net sales in 2014. The Home Depot provides services and sells a wide variety of products in its stores: building materials, home improvement products and lawn and garden products. In the end of fiscal year 2014 (02-01-2015), the company had a total of 2.269 stores, from which 1.977 were located in the United States (including the Commonwealth of Puerto Rico and the territories of the US Virgin Islands and Guam), 181 in Canada and 111 in Mexico. The stores are characterized by its large dimension. On average, the stores have 104.000 square feet of closed space and an additional outside area of, approximately, 24.000 square feet. In terms of net sales, the company was considered the world largest home improvement retailer in the fiscal year of 2013.

The company's business strategy lays in three principles: customer service, product authority for home improvement and disciplined capital allocation, productivity and efficiency which conducted them to their most recent initiative: Interconnected Retail.

As their stores in North America are close to saturation and is not on the plans of the company to expand abroad, instead they decided to focus on boosting performance of the current locations by improving efficiency and online operations. As there has been a shift in the way customers shop, nowadays consumers expect to get what they want, when and where they want. This way, the company has been focused in improving the digital access to their stores in order to allow customers to shop online. Also, they have been strengthening the connectivity between stores and online channels. The Home Depot has already several interconnected retail programs established: Buy Online/Pick-up in Store, Buy Online/Ship to Store and Buy Online/Deliver From Store.

The company identifies three primary customer groups and offers services to satisfy each of them: customers that commonly own their houses and buy products and finish

themselves the projects and installations (Do-It-Yourself Customers); home owners that buy products and hire someone else to finish the project (Do-It-For-Me Customers); and several types of professionals (Professional Customers).

Home improvement retail is influenced by seasonality and the company's highest volume of sales happens in the second fiscal quarter and the lowest occurs in the fourth fiscal quarter. Furthermore, the industry is very competitive primarily based on price, customer service, store location and quality, quantity available variety of products. Although the company is the largest home improvement retailer in the world, has competitors in each of its segments with special emphasis to online retailers.

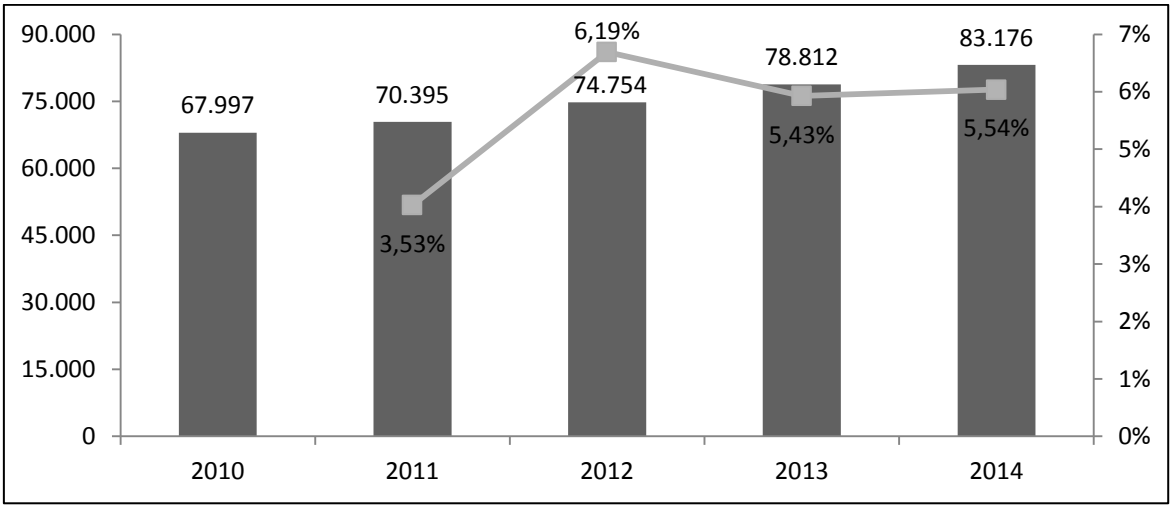
The company also makes the best effort to build the best competitive advantages in their information technology and supply chain. This way, their focus continues to be on optimizing supply chain network and improving the inventory, transportation and distribution productivity. In terms of logistics, the company's main concerns are to make sure products are available for customers by investing in inventory and by managing total supply chain costs. This way, recently they have been focused on optimizing their network through the 18 Rapid Deployment Centers (RDCs) they have in the US and recently one in Canada and another estimated to open in 2015, building new logistics capabilities and improve the inventory management systems. Their inventory planning is centralized, which helps them to improve product availability and inventory productivity.

Sales of The Home Depot are spread over USA, Canada and Mexico, with USA sales accounting for around 89% which makes us assume Canada and Mexico are not representative of the company's business and thus assume the business as completely American.

As the home improvement industry is highly dependent in the house market, it was severely affected by the financial crisis of 2007. More recently, there has been a recovery which also influenced positive performance of the revenues.

The evolution of the company's total revenues can be seen in the graph below.

Graphic 8 – Total Net Revenues, 2010-2014, in $ millions

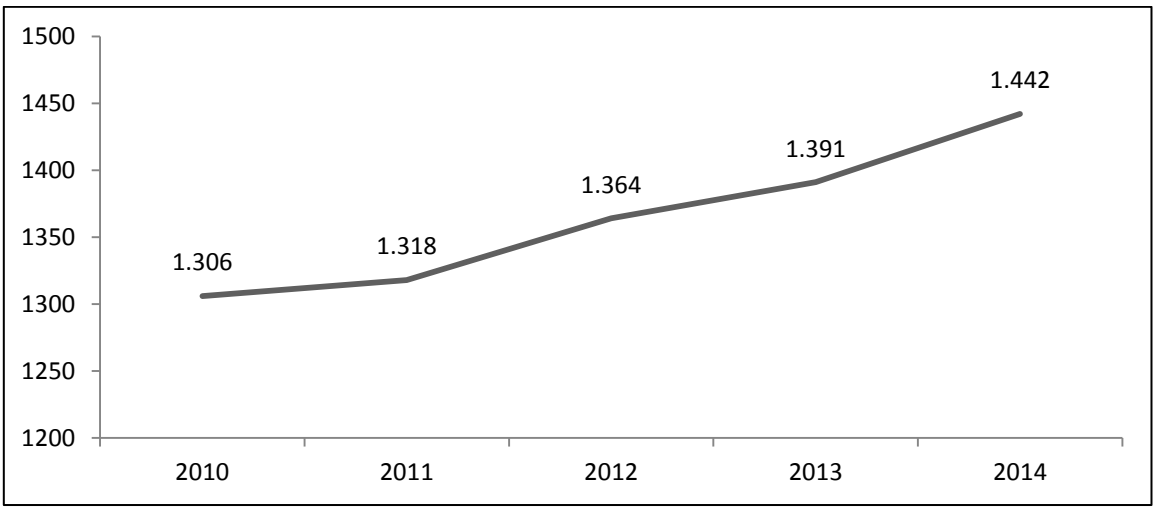


Source: Company reports and own calculations

In the period of analysis (2010-2014), the company's revenues grew in every year, achieving an average of 5% growth rate per year, from $68 billion in 2010 to $83 billion in 2014. As stated before, the growth in sales has been driven by improvements in efficiency and online channels. As a consequence, from 2013 to 2014, online sales grew by almost 40% and accounted for 4,5% of total sales in 2014. On the other hand, the same-store sales, which measure the growth in existing stores for at least 12 months, have also been increasing and in 2014 it increased by 5,30% in comparison with 2013.

The positive performance of same-store sales is a consequence of several policies in order to increase efficiency and productivity, specifically strengthening maintenance and repair categories which led to increases in customers' transactions as can be seen in the figure below.

Graphic 9 – Total Number of Transactions (in $ millions)

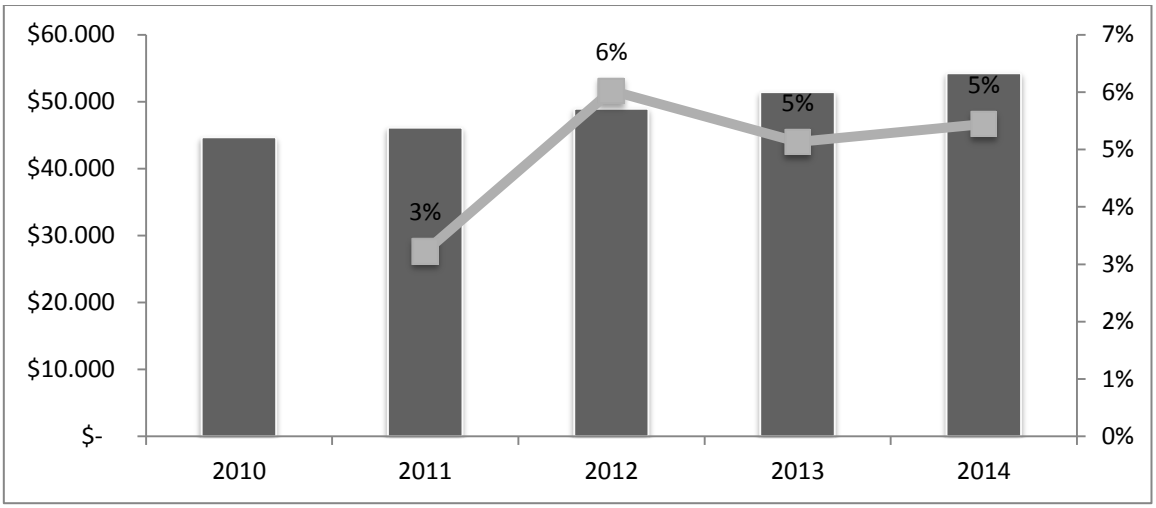


Source: Company Reports

Since 2010 the number of customer transactions have increased by more than 9%, driven not just by the company's interventions but also by the increase in private fixed residential investment. The rising of housing prices have also been making consumers more confident about the value of their houses, which makes them more able to spend more money on remodeling their houses.

The costs of goods sold (COGS) face a very similar behavior over the years, representing around 65% of net sales, as it is possible to see in the graph below.

Graphic 10 – COGS (in $ millions)

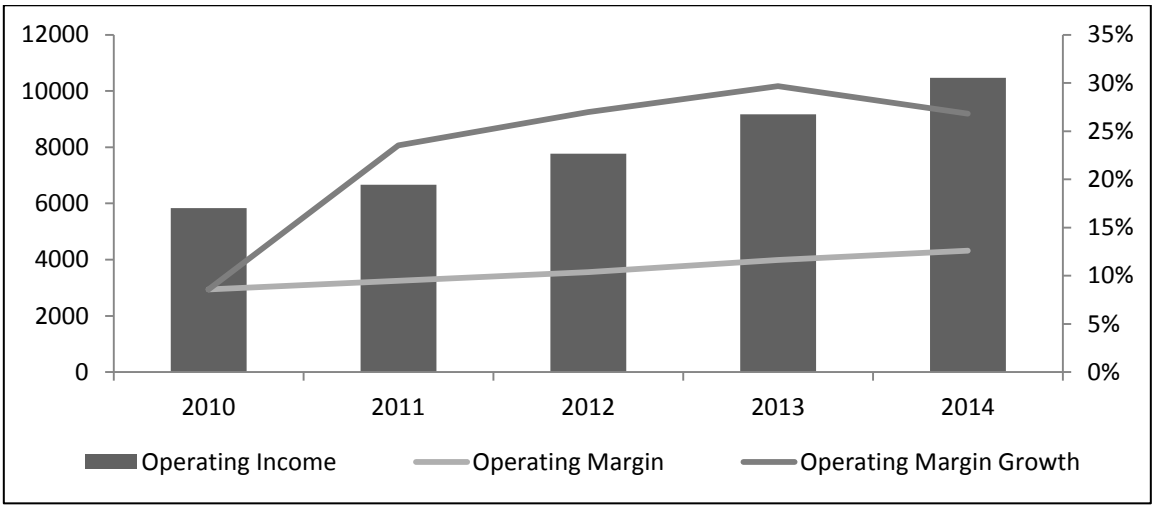


Source: Company Reports and own calculations

Home Depot's operating income have also been increasing every year, with the operating margin being around 12% in 2014. These improvements in the margins are

mostly driven by better customer service and merchandise selection and availability and it is expected to improve even more as the economy keeps recovering.

Graphic 11 – Operating Margins (in $millions)

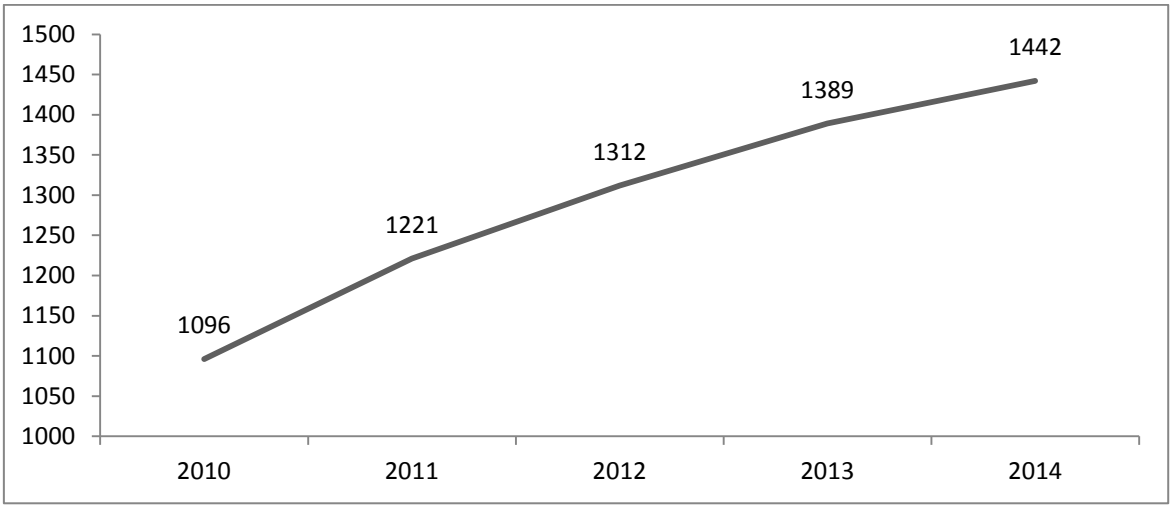


Source: Company Reports and own calculations

Gross margins have also been improved due to the supply chain's optimization. With the centralization of ordering and distribution through Rapid Development Centers, 30% of the product is delivered directly to the store, down from 70% and 90% of items are automatically replenished. Along with the three new fulfillment centers of 1 million square feet each for the online business, gives Home Depot two-day coverage to 90% of customers and should further aid margins. In terms of products provided, the company is focused on delivering product innovation, assortment and value. Several new and innovative products have been introduced in the HD stores.

As a consequence of all the initiatives and improvements, especially in online channels, capital expenditures have also been increasing, as can be seen in the figure below.

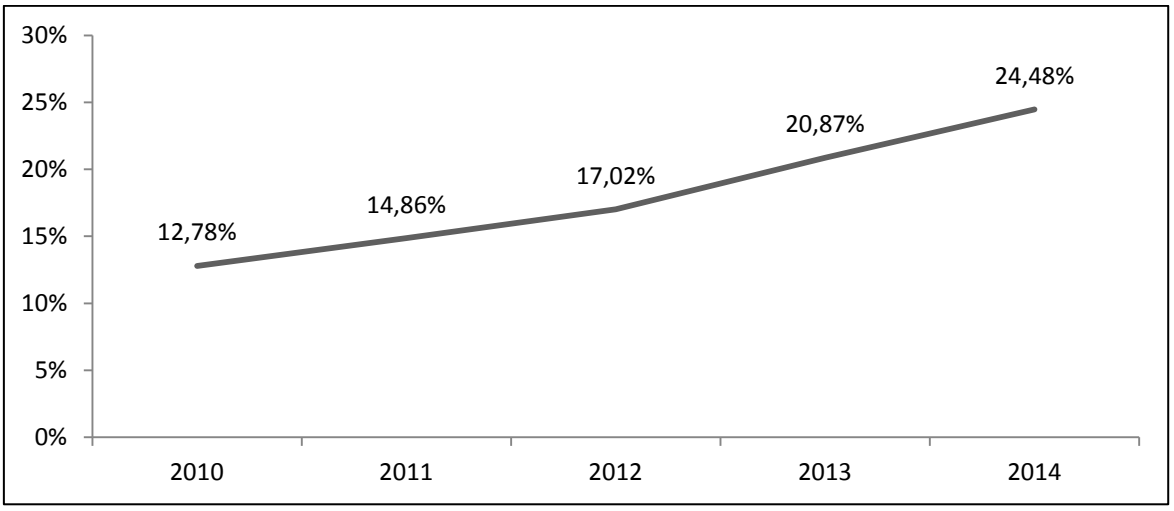
Graphic 12 – Capital Expenditures (in $ millions)



Source: Company Reports

Their capital allocation is then focused on investing to maintain the asset base of business, to improve efficiency and to implement online shopping service. A way of assessing how efficient the company is at allocating capital to profitable investments is the return on invested capital. Its evolution can be seen in the figure below.

Graphic 13 – ROIC



Source: Company reports and own calculations

From the figure, one may see that return on invested capital has been growing over the years to around 24,9% in 2014 proving the company has been efficient in its investments, and thus impacting the good performance of the company.

HD has also returned more than 53$ billion to investors since 2002 via share buybacks as it repurchased 1.2 billion shares. HD also boosted the quarterly dividend 26%.

Furthermore, the company wants to increase dividend every year and targets a payout-ratio of 50% of net earnings. Usually, the company also distributes excess cash to shareholders through share buy backs. In 2014, 80 million shares (7billion) were repurchased but in the future the capital structure is expected to remain unchanged.

Company's Valuation

In this section, I will present the outcome of the valuation methods used to value The Home Depot: The Discounted Cash Flow, the Dividend Discount Model and the Multiples. The date of the valuation is 30th of January of 2015.

When valuing the company through discounted cash flows, forecasts have to be made and are divided in two periods: the explicit period which comprises 5 years through which one believes the company will stabilize, and the terminal value where the company is assumed to be in a steady state growing at a constant rate forever.

All the items were forecasted for the company as a whole, including revenues, given that the USA market represents around 89% of total revenues and thus, it was assumed that the company only operates in the USA.

1. DCF Valuation

Discounted Cash Flow approach discounted at the WACC was one of the methods used to value The Home Depot, as previously discussed in the literature review.

The debt ratio has been increasing over the years mainly as a consequence of the shares repurchase programs the company has been doing. However, from now on, the capital structure is expected to remain steady as it is close to the optimal target and it is the reason for the adjusted present value method not being used, as explained in the literature review.

The company announced the intention of achieving a payout ratio of 50% by increasing the dividend per share starting in 2015 by increasing it to 2,36$ annual per share. This way, the forecast will be made using the target set by the firm by increasing the dividend proportionally every year and until reaches the target. This might be a sign that the company expects strong future performance.

After the company enters the steady-state, and as it is not reasonable to assume the company will continue growing forever, from 2019 onward it is assumed that the company enters in a steady state and that will grow at the inflation rate in the USA.

1.1 Forecast Period

1.1.1 Revenues

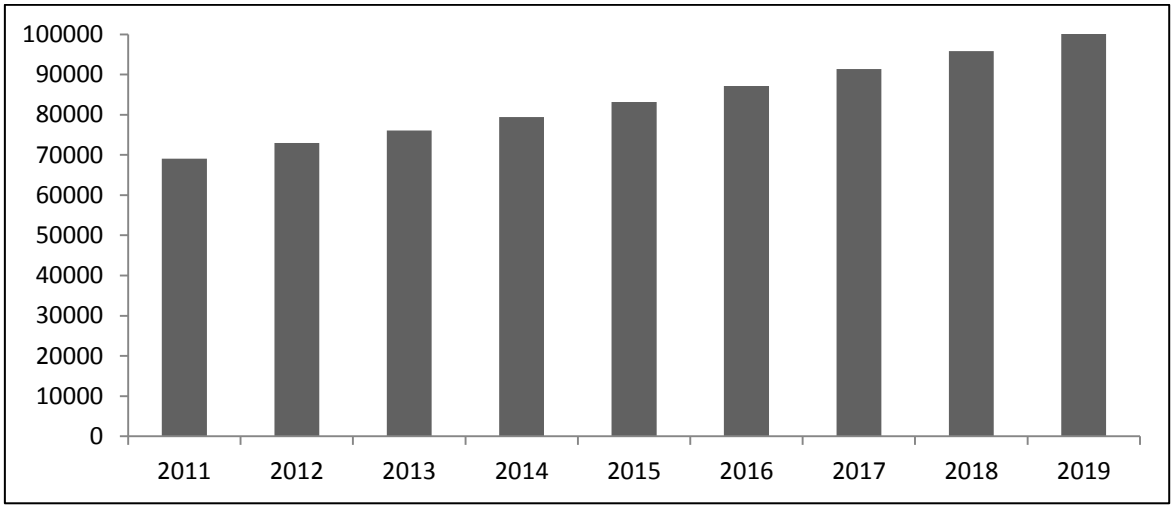
Revenue is of major importance in the forecast as many other items are directly driven from its value.

As stated before, The Home Depot's revenues are distributed in 3 countries: U.S.A., Canada and Mexico, however revenues in U.S.A. account for more than 80% of total revenues. This way, revenues will be estimated as if the company only operates in the USA. In terms of stores, the company had a total of 1977 stores in the USA, 181 in Canada and 111 in Mexico, in the end of fiscal year 2014. The number of stores in Canada has been constant with only one new opening since 2010. As for Mexico, the number of stores grew from 85 in 2010 to 111 in 2014. As for the USA, the number of stores has also remained stable with only one new store since 2010. This evolution goes along with the strategy of the company of not expanding to gaining from improvements in efficiency and productivity. Thus, the square-foot added indicator, commonly used in the industry, will not be used.

Over the past 5 years (2010-2014) the CAGR was 4,11% driven essentially by comparable store sales and more recently online sales, however with a lower contribution. In the period of forecast (2015-2019) it is expected that the company continues to grow its sales mainly due to improvements in efficiency and increase in the e-commerce sales and because of that, total sales were divided between retail sales (from stores sales) and online sales.

When forecasting the sales from physical stores, it was analyzed the historical pattern and the expectations for the future. As the major driver is improvements in efficiency and productivity that started very recently, one looked at the evolution from 2013 to 2014. The sales growth increased by 0,02% from one year to another. Furthermore, after a point where efficiency is in its maximum level, sales are expected to keep growing but at a stable path. Moreover, according to Home Improvement Research Institute, industry retail sales are expected to grow at an average of 4,5% per year. Having all this in count, it is expected that in 2015 and 2016 sales growth will increase by 0,02% each year and then remain stable until the steady state, growing at 4,85% from 2017 to 2019.

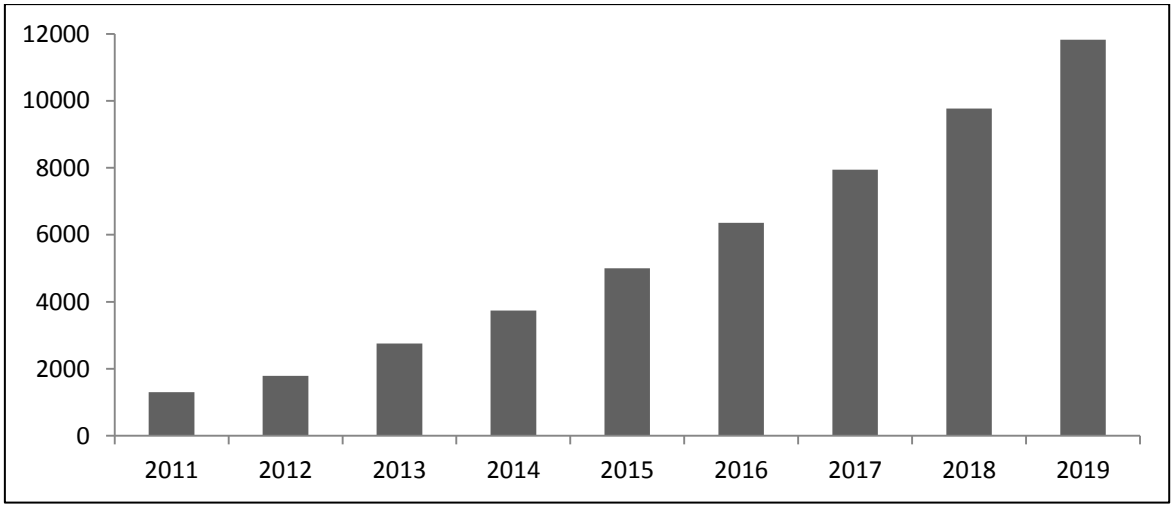
Graphic 14 – Forecast of Sales from in-store (in $ millions)



Source: Company reports and own calculations

In terms of e-commerce sales, they saw its biggest rise in 2013 with a growth of 53,75% and 38% in 2012 and 35,69% in 2014. Furthermore, Forrester Research Inc predicts a growth for e-commerce retail for the next five years, however at a slower rate (less 2% each year). Although The Home Depot started recently its e-commerce segment, they still represent 4,5% of total sales in 2014. Moreover, the same study also predicts that e-commerce sales are going to represent 10% of total retail sales by 2019. This way, HD's e-commerce sales are expected to grow in 2015 33,69% (growth of 2014 minus 2%) and will continue until 2019, where online sales will account for 10% of total sales. In terms of total sales, they will grow at 5,95% in 2015 and 6,34% in 2019. This is also consistent with forecasts for the whole industry.

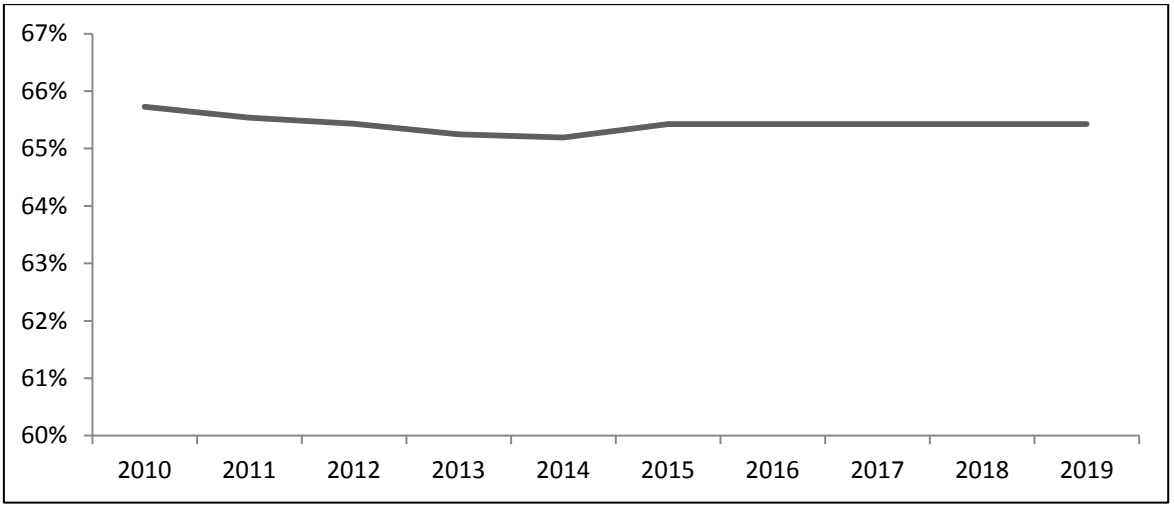
Graphic 15 – Forecast of Online Sales (in $ millions)



1.1.2 Cost of Sales

Cost of sales include the cost of products sold and services performed, the cost of transportation of merchandise from vendors to the firm's stores, locations or customers, the operating cost of sourcing and distribution network. The following table exhibits the evolution of the company's historical and forecast cost of sales as a percentage of revenues.

Graphic 16 – COGS as % of Revenues



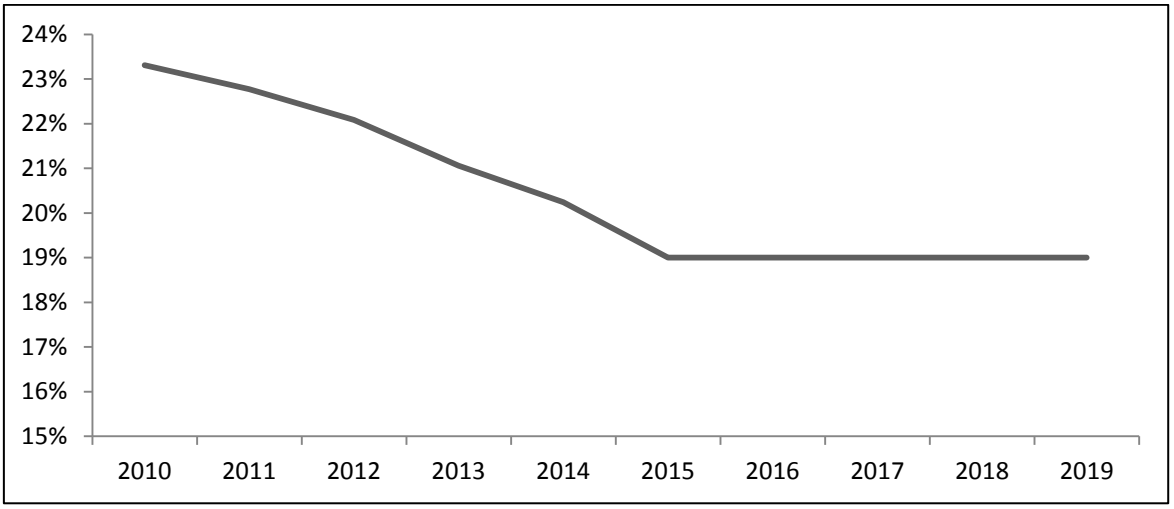
Source: Company reports and own calculations

In terms of COGS to revenues, the ratio kept stable over the years, being around 65% and thus, the same ratio will be assumed to remain constant in the future as no remarkable changes are expected.

1.1.3 Selling and Administrative Costs

Selling and administrative costs include the cost of handling and shipping merchandise from company's stores, locations or distribution centers to the customer. The following table summarizes the evolution of the costs over the historical period and the forecast for the future.

Graphic 17 – SG&A as % of Revenues



Source: Company reports and own calculations

Selling and administrative expenses have been around 16 billion, or between 20% and 23% of revenues. As stated by the company, part of their improvements is the intention of decreasing SG&A smoothly, as it has been happening since 2013. This decrease in SG&A (in terms of % of revenues) is driven by comparable store sales and expense controls. This way, one must expect that the cost must keep in the same path, thus decreasing 1% of its weight on revenues in 2015 and then keep constant at 19% of total revenues.

1.1.4 Income Taxes

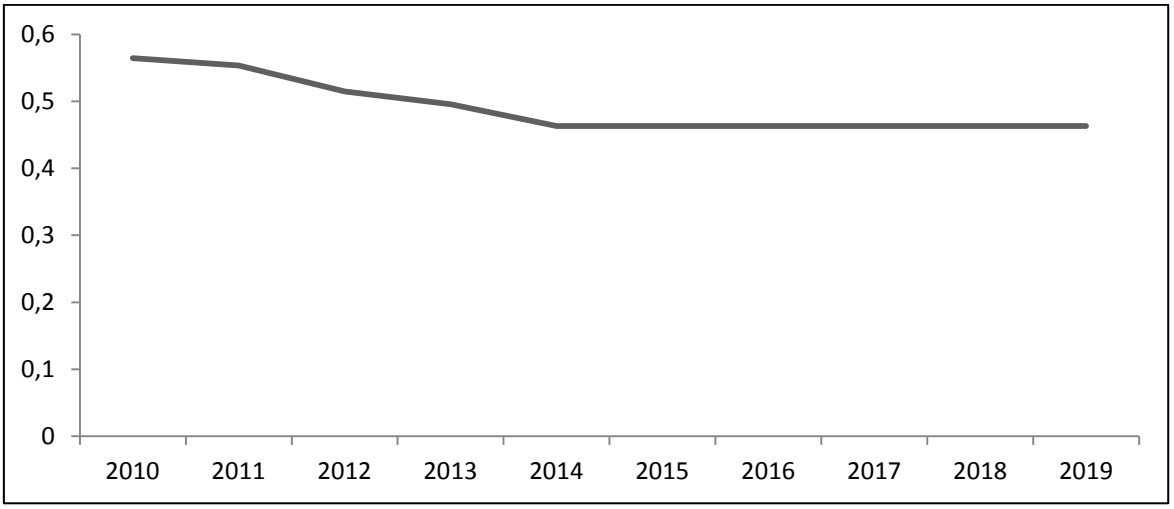
In terms of income taxes, The Home Depot presented very stable values with the tax rate being between 36% and 37%. This way, for the forecasting period, it will be used an historical average of 36,5% for the effective tax rate.

2.1 FCFF

2.1.1 Capex, PP&E andDepreciation and Amortization

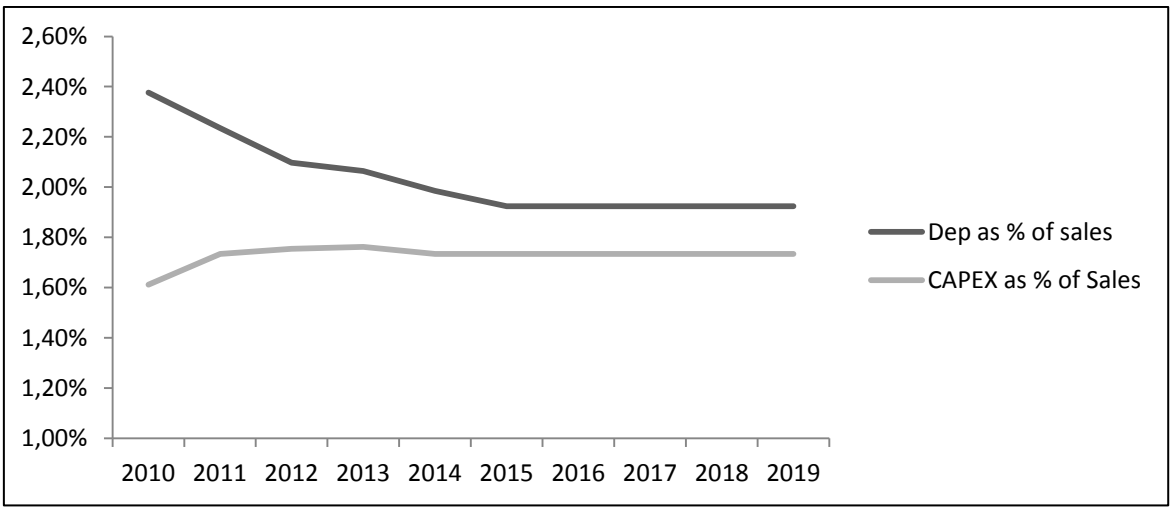
Capex was computed according to Goedhart et al. (2010), which states that capex, depreciations and amortizations must derive from future projections of PP&E. To do so, first PP&E was analyzed historically as a percentage of revenues (capital turnover) and made the forecast for the future, which can be seen in the following graph.

Graphic 18 – Capital Turnover



Source: Company reports and own calculations

Graphic 19 – Depreciations and Capex as % of Revenues



Source: Company reports and own calculations

Over the historical period, capital expenditures represented around 1,7% of sales and presented a very similar path as PP&E. As the company is already very mature and is maintaining their investments strategy, one is to assume that capital turnover will be the same as in 2014 (46%) and depreciations to sales remain constant in the future at 1,73% of sales.

According to researchers, depreciation should be forecasted either as a percentage of sales or as a percentage of property, plant and equipment. This way, to estimate the depreciations, it was used an historical percentage average of PP&E depreciation rate

(4,15%). This was done after carefully analyzing both PP&E and depreciation patterns over the years and one had concluded that they evolved in the same path.

3.1 Investment in Working Capital

Investment in working capital includes all the non-financial expenses needed for the day-to-day operations of the company. This way, working capital was estimated by summing account receivables, merchandise inventories and other current assets, and then by subtracting account payables and other operational current liabilities.

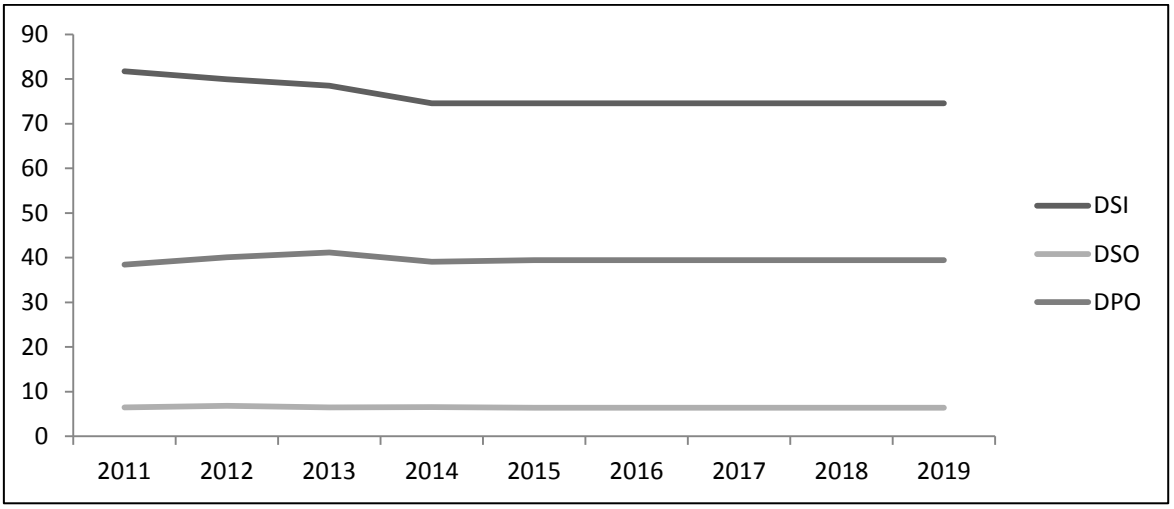
In order to estimate those variables for the forecast period, it was used the ratios Days Sales of Inventory (DSI), Days Payable Outstanding (DPO) and Days Sales Outstanding (DSO). After getting historical values for all three ratios, it was assumed that in the future they are going to keep the same value as an average of the historical period (2010-2014). This assumption is based on the fact that they have had very similar values in the past and that no future changes are expected.

Table 2 – Working Capital Calculations (in $ millions)

	2014	2015E	2016E	2017E	2018E	2019E
Inventories	11.079	11.781	12.501	13.278	14.115	15.011
COGS	54.222	57.659	61.180	64.985	69.081	73.464
DSI	**75**	**75**	**75**	**75**	**75**	**75**
Account Receivable	1.484	1.549	1.644	1.746	1.856	1.974
Other Current Assets	1.016	986	957	929	902	875
Total Sales	83.176	88.128	93.511	99.327	105.586	112.286
DSO	**7**	**6**	**6**	**6**	**6**	**6**
Account Payable	5.807	6.233	6.614	7.026	7.468	7.942
Other Current Liabilities	9.135	9.580	10.047	10.536	11.049	11.588
DPO	**39**	**39**	**39**	**39**	**39**	**39**
Working Capital	-2.379	-2.483	-2.516	-2.537	-2.547	-2.545
Change in WC	**-67**	**-104**	**-33**	**-21**	**-9**	**1**

Source: Company reports and own calculations

Graphic 20 – DSI, DSO and DPO Forecasts



Source: Company reports and own calculations

4.1 WACC

The weighted average cost of capital was estimated according to Koller et al. (2005) and using the following formula:

$$WACC = \frac{E}{E+D} R_E + \frac{D}{E+D} R_D (1-T)$$

Hence, the WACC estimated for The Home Depot was 6,03%.

5.1 Capital Structure

The capital structure was computed based on market values of both equity and debt. For the equity it was estimated based on the number of stocks outstanding times the price per share at the time of valuation. As for the market value of debt, it was computed based on the interest payments made by the company each year divided by the cost of debt. Furthermore, one arrived to an equity ratio of 76% and a debt ratio of 24%. Although the company has been pursuing a share repurchase program, it is not expected to affect the capital structure in the future and thus, is expected to remain at these levels.

6.1 Cost of Equity

As previously discussed in the literature review, there are several ways of estimating the cost of equity, and in this valuation will be used the capital asset pricing model (CAPM) as it is the most common model used by analysts and the results over the years have been quite consistent. After applying the model, one arrived at a cost of equity of 7,35%.

7.1 Risk Free Rate

As the company's business is focused on the USA, it was used as the risk free rate the 10 year US treasury bond of the day of the valuation (1,64% at 30th of January of 2015) given by Bloomberg.

7.1.1 Market Risk Premium

As The Home Depot is listed in the American stock exchange, the market risk premium was computed by comparing the return of the index S&P500 with the risk free rate (US treasury bond). The prices of the S&P500 Index were gathered from Bloomberg and the returns were computed on a daily, weekly and monthly basis but only the daily data was used as it gave the highest R^2 on the CAPM regression. The time frame used in all frequencies was from 2005 until 30th of January of 2015, the date of the valuation in order to include data from before, during and after the crisis. Finally, one arrived to a market risk premium of 5,75%.

8.1 BETA

To estimate the beta, the linear regression approach was used, using the historical returns of The Home Depot as the dependent variable and market risk premium as the independent variable. The data frequency used was also daily as it again provided the highest R^2 providing a beta of 0,99. This value is very close to 1, which proves that the company is highly influenced by the macroeconomic environment. Also, its peers present betas very close to that value.

9.1 Cost of Debt

The Home Depot has a rating of A by Standard&Poors which leads us to assume its probability of default to be very small. This way, the cost of debt was computed by analyzing all the company's outstanding long-term bonds at the time of valuation and thus, doing a weighted average of the yields to maturity, given the amount outstanding. The cost of debt computed was of 3,01%.

2. Output of the Valuation

After analyzing carefully and forecasting every component of free cash flow to the firm, one is now able to compute the enterprise value.

After computing and summing the present value of expected future cash flows, one arrives at the enterprise value. Then, one must subtract the market value of debt and

sum the cash and cash equivalents. As for the market value of debt, it was used the same as for the capital structure of the company. For the cash and cash equivalents, one used the value of the balance sheet in 2014.

Table 3 – Outcome of DCF Valuation (2014, in $ millions)

Enterprise Value	**195.136**
Market Value of Debt	43.511
Cash	1.723
Equity	153.348
Shares Outstanding	1.307
Price Per Share	**117,33**

Source: Company reports and own calculations

Lastly, perpetuity growth was assumed to be 2,33%, the inflation rate of the USA, because one believes that, in perpetuity, the company will grow at the same rate as inflation. Given all these, one reached an enterprise value of 195.136 million $ and a market value of equity of 153.348 million $.

The total number of shares has been changing over years with the share purchasing program the company had, but from 2014 onwards, it is expected to remain constant and thus was assumed the number of shares of 2014. The final result is a price per share of 117,3283 $.

3. Dividend Discount Model

Another model used to value The Home Depot was the Dividend Discount Model, which is no more than discounting the dividends shareholders are expected to receive in the future.

The same assumptions used in the DCF approach were used here, namely that the capital structure will not change giving a constant cost of equity and that the free cash flow to the equity will grow in perpetuity at the same constant rate as the free cash flow to the firm.

Then, the sum of the present value of the expected future dividends were added to the terminal value, discounted at the cost of equity (7,35%). The payout ratio of the firm, which represents the dividends per share divided by earnings per share, was 39% in 2014, providing a dividend of 1,88$ per share. The company stated the intention of increasing the dividend per share every year targeting a payout ratio of 50%.

Furthermore the company also stated that in 2015 would increase the dividend per share to 2,36$, giving a payout ratio of 38%. This way, and in order to forecast future dividends, one used the target of 50% for the payout ratio established by the company.

Afterwards, and when applying the model, one arrived to a price per share of 75,59$, which is quite different and below than the one provided by the DCF approach. Usually, when the dividend discount model gives lower prices than the discounted cash flow, it means that the company has lower dividends compared to the free cash flow to the equity. One sign of that is the intention of the company to increase the dividend every year, thus distributing more cash to shareholders.

4. Relative Valuation

Relative valuation, as its name indicates, relates the company's share price with the performance of its comparables in the industry. It can be considered as a benchmark, given that it is compared with the results obtained from the DCF approach. According to Fernandez (2002), it is a very important complement to the other valuation methods. The next steps are to define the peer group and the multiples to be used.

4.1 PEER Group

To choose the peer group, the first condition used was companies operating in the same market and business segment, in accordance with Liu et al. (2002). After that, one gathered data concerning the 20 most similar companies related to The Home Depot, meaning operating in the same market (Home Improvement Retail) and with similar revenues. Only companies operating in North America were considered since The Home Depot's sales in Mexico are not representative of the whole business. In addition, was used a centroids approach to restrain the peer group to the ones even more similar to The Home Depot, in terms of sales growth, cost of capital, ROIC and capital structure. The application of this approach resulted in 4 companies: Lowe's, Tile Shop, Rona and Lumber Liquidators. Lowe's company is the best peer of The Home Depot in terms of its size, products offered, recognition in the market and strategy.

Table 4 – Peer Group

	Debt/Assets	ROIC	Raw Beta	EBITDA Margin 3Yr Avg.
Lowe's	35,71	13,92	1,02	10,76
Tile Shop	36,88	6,94	1,32	20,51
Rona	8	5,12	0,75	3,49
Lumber Liquidators	0	19,48	0,67	11,99
The Home Depot	**43,05**	**24,48**	**1,09**	**13,74**

Source: Bloomberg

When making a comparison between HD and its peers, one can conclude that HD is performing better, and one must also take into account that HD is the largest of the industry. In terms of profitability ratio, it has the highest with 24% and in terms of EBITDA margin, it only has Tile Shop ahead. Given that, in general, HD is performing better than its peers and one might expect that the share price of HD should actually be higher than the one resulting from relative valuation with the peer group presented.

5. Multiples Approach

After defining the peer group, the multiples approach was applied. The harmonic mean of the peer group's multiples was computed and then multiplied by the respective drivers. From the three multiples computed were chosen two to value The Home Depot. The first was the EV/EBITDA because it is the most used enterprise multiple and is less susceptible to inaccuracies given different capital structures or tax rules. It also represents a good proxy for cash flow valuation and is not susceptible to accounting changes from depreciation and amortization that can lead to misleading conclusions. The second was price to earnings ratio because it is the most used equity multiple and the limitation of capital structure was taken into account when applying centroids. The following tables sum up the results.

Table 5 – Multiples Valuation

	EV/EBITDA	P/E
Lowe's	12,43	23,93
Rona	11,75	24,83
Tile Shop	10,68	23,21
Lumber Liquidator	17,32	60,61
Peer Group's Mean	12,09	24,38
The Home Depot's Driver	12.119,80	6.344,80
Price per share	**80,14**	**118,35**

Source: Bloomberg, Company Reports and own calculations

When analyzing the results, one can conclude that there is a huge discrepancy between

them and distant from the value derived from DCF. Furthermore, the Price/Earnings ratio seems to be the most reasonable multiple because values the company at 118,35$ of price per share. This result is consistent with the findings of DCF and DDM that The Home Depot's stock is undervalued.

Sensitivity Analysis

As the assumptions used are the key for the valuation outcome, it is important to analyze how a change in those assumptions would impact the overall valuation. As stated before, the growth rate and the cost of capital are of extreme importance for the value of The Home Depot and thus, one performed a sensitivity analysis using both variables to see how the value of the company would be affected by its changes.

The sensitivity analysis was performed by changing the two variables at the same time, and to do so, a two-dimensional data table was used.

Table 6 – Sensitivity Analysis Output

		Perpetuity Growth						
	117,33	2,18%	2,23%	2,28%	**2,33%**	2,38%	2,43%	2,48%
WACC	5,88%	118,14	119,94	121,79	123,70	125,66	127,67	129,75
	5,93%	116,12	117,87	119,67	121,52	123,42	125,37	127,38
	5,98%	114,15	115,85	117,60	119,39	121,24	123,14	125,09
	6,03%	112,23	113,88	115,58	**117,33**	119,12	120,96	122,86
	6,08%	110,36	111,97	113,62	115,32	117,06	118,85	120,69
	6,13%	108,54	110,11	111,71	113,36	115,05	116,79	118,58
	6,18%	106,77	108,29	109,85	111,46	113,10	114,79	116,53

Source: own calculations

When analyzing the impact of small changes (0,0005) in the perpetuity growth, one may conclude that it has great impact in the final price, ranging from 112,23$ with a decrease in the rate to 122,86$ with an increase in the rate.

The same analysis was applied to the WACC, and the same conclusions could be taken. This time, the price would range from 111,46$ with a decrease and 123,70 with an increase.

The huge sensitivity of the final price to changes in both perpetuity growth and WACC can be mainly explained by the high weight the terminal value has on the value of the company (around 85%).

Research Report Comparison

The purpose of this section is to compare the valuations performed with one of an investment bank. To do so, the valuation from JPMorgan was chosen because the date of the valuation was the closest to the date of this dissertation (18th of February of 2015).

Table 7 – JP Morgan and Thesis Comparison

	JPMorgan	Thesis
Date	18-02-2015	30-01-2015
Price	111,99	103,34
P/E	24,6	21,22
EV/EBITDA	13,5	16,10
Upside	-2%	14%
Target Price	110	117,33

Source: Bloomberg, company reports and own calculations

The price differs from 117,32$ to 110$. The divergence in the results lays, primarily, in the assumptions used to make the forecast.

As one may see in the following figure, the Investment Bank seems to have a more conservative approach in terms of future growth. The investment bank forecasts two periods, 2015 and 2016, with sales growth of 4,2% and 3,8% respectively. In this thesis, one is to assume that the impact of efficiency and productivity improvements and the rise on online sales will boost sales at a CAGR of 2%, 1% higher than the forecast of JPMorgan.

It is also important to state that the investment bank's data for the 4th quarter of 2014 was estimated, which brings even more uncertainty to the outcome.

Table 8 – JP Morgan and Thesis Assumptions

	2014		2015		2016		CAGR (2012-2016)	
	JPMorgan	Thesis	JPMorgan	Thesis	JPMorgan	Thesis	JPMorgan	Thesis
Revenues	82.684	83.176	86.196	88.128	89.439	93.511	3,65%	4,58%
EBITDA	12.134	12.120	13.218	9.995	14.239	10.630	8,21%	2,64%
Margin	14,70%	14,57%	15,30%	11,34%	15,90%	11,37%		
EBIT	10.355	10.469	11.458	13.725	12.479	14.564	9,54%	13,40%
Margin	12,52%	12,59%	13,29%	15,57%	13,95%	15,57%		
Net Profit	6.010	6.345	6.645	8.299	7.222	8.831	9,06%	14,26%

Source: Bloomberg, company reports and own calculations

Furthermore, some other differences in the assumptions were found in terms of cost of sales, SG&A and depreciations which can explain the difference in the final price.

As so, also net income diverges from the results of this thesis, as here a more optimistic view is considered with the decrease in the operational costs, which the bank does not consider.

Table 9 – JP Morgan and Thesis Multiples Comparison

	JPMorgan	Thesis
P/E	24,60	21,22
EV/EBITDA	13,50	16,10

Source: Bloomberg, company reports and own calculations

The bank decided to use multiples approach to value The Home Depot. From the figure, one may see the discrepancy. For example, the EV/EBITDA shows a gap of 3% between them.

In conclusion, the different assumptions for growth that shows a more conservative perspective, is what justifies the lower price computed by JPMorgan.

Conclusion

The purpose of this thesis was to value The Home Depot and give an accurate price for its stock.

First, one reviewed the existent literature on the major valuation methods and highlighted its advantages and drawbacks, concluding that there exists no perfect or ideal method to perform a valuation. Still, discounted cash flow models nowadays seem to be the most preferred. Additionally, one also found that assumptions are of extreme importance given that they translate the characteristics of the company and of the industry where it operates.

Secondly, one analyzed both the company and the home improvement industry. Regarding The Home Depot, it was shown that it is a very mature firm, responding well to the challenges of the industry and the economy, namely e-commerce channels and financial crisis. It can be found with the fact that online sales grew up by more than 35% in 2012 and 50% in 2013.

In the third part, three valuation methods were applied: DCF, DDM and multiples. From them, three different final prices were found, which seem acceptable given that each one of them have its own specificities and lay on different valuations and fundamentals. The price resulting from the DCF method was the one chosen considering its wide use in the finance world. Thus, the final stock price reached was 117,32$ with a WACC of 6,03%, which represents a 14% upside when compared with the market price at the same date. This way, one must also conclude that the stock of The Home Depot is being undervalued by the market, which makes one believe that buying the company's stock is a good investment decision.

After the valuation being done, it was performed a sensitivity analysis to the most relevant variables in the model: perpetuity growth and WACC. Regarding both of them, and even with high variations, the conclusion of the company being undervalued holds as the price never reaches the market price at the time of the valuation.

In the final chapter, one compared the valuation of this thesis with the research report of JP Morgan. From that, one may also conclude that assumptions are crucial to make a valuation and that different assumptions may lead to different results. The major

difference lays in the expectations of revenue growth with JP Morgan adopting a more conservative approach.

As a final remark, The Home Depot is responding well to the challenges of the industry, namely rise in e-commerce, and the economic recovery showing that still has room to grow which supports the main conclusion of this dissertation that the market undervalues the company and thus, it is a good investment strategy.

Appendix

1. Income Statement

1.1.Historical

	2010	*2011*	*2012*	*2013*	*2014*
NET SALES	**67.997**	**70.395**	**74.754**	**78.812**	**83.176**
growth		***3,53%***	***6,19%***	***5,43%***	***5,54%***
Cost of Sales	44.693	46.133	48.912	51.422	54.222
GROSS PROFIT	**23.304**	**24.262**	**25.842**	**27.390**	**28.954**
as % of net sales	**34,27%**	**34,47%**	**34,57%**	**34,75%**	**34,81%**
Operating Expenses:					
Selling, General and Administrative	15.849	16.028	16.508	16.597	16.834
as % of net sales	**23,31%**	**22,77%**	**22,08%**	**21,06%**	**20,24%**
Depreciation and Amortization	1.616	1.573	1.568	1.627	1.651
as % of net sales	**2,38%**	**2,23%**	**2,10%**	**2,06%**	**1,98%**
Total Operating Expenses	17.465	17.601	18.076	18.224	18.485
as % of net sales	**25,69%**	**25,00%**	**24,18%**	**23,12%**	**22,22%**
OPERATING INCOME	**5.839**	**6.661**	**7.766**	**9.166**	**10.469**
as % of net sales	**8,59%**	**9,46%**	**10,39%**	**11,63%**	**12,59%**
Interest and Other (Income) Expense:					
Interest and Investment Income	-15	-13	-20	-12	-337
Interest Expense	530	606	632	711	830
Other	51	0	-67	0	0
Interest and Other, net	566	593	545	699	493
EBT	**5.273**	**6.068**	**7.221**	**8.467**	**9.976**
Provision for Income Taxes	1.935	2.185	2.686	3.082	3.631
NET PROFIT	**3.338**	**3.883**	**4.535**	**5.385**	**6.345**

Source: Company reports

1.2.Forecasted

	2015E	*2016E*	*2017E*	*2018E*	*2019E*
NET SALES	**88.128**	**93.511**	**99.327**	**105.586**	**112.286**
growth	***5,95%***	***6,11%***	***6,22%***	***6,30%***	***6,34%***
Cost of Sales	57.659	61.180	64.985	69.081	73.464
GROSS PROFIT	**30.470**	**32.331**	**34.342**	**36.506**	**38.822**
as % of net sales	**34,57%**	**34,57%**	**34,57%**	**34,57%**	**34,57%**
Operating Expenses:					
Selling, General and Administrative	16.744	17.767	18.872	20.061	21.334
as % of net sales	**19,00%**	**19,00%**	**19,00%**	**19,00%**	**19,00%**
Depreciation and Amortization	1.695	1.799	1.911	2.031	2.160
as % of net sales	**1,92%**	**1,92%**	**1,92%**	**1,92%**	**1,92%**
Total Operating Expenses	16.744	17.767	18.872	20.061	21.334
as % of net sales	**19,00%**	**19,00%**	**19,00%**	**19,00%**	**19,00%**
OPERATING INCOME	**13.725**	**14.564**	**15.469**	**16.444**	**17.488**
as % of net sales	**15,57%**	**15,57%**	**15,57%**	**15,57%**	**15,57%**
Interest and Other (Income) Expense:					
Interest and Investment Income	-15	-15	-15	-15	-15
Interest Expense	662	662	662	662	662
Other					
Interest and Other, net	647	647	647	647	647
EBT	**13.078**	**13.917**	**14.823**	**15.797**	**16.841**
Provision for Income Taxes	4.779	5.085	5.416	5.773	6.154
NET PROFIT	**8.299**	**8.831**	**9.406**	**10.025**	**10.687**

Source: Company reports and own calculations

2. Free Cash Flow to the Firm

2.1.Historical

	2010	*2011*	*2012*	*2013*	*2014*
EBIT	5.839	6.661	7.766	9.166	10.469
Taxes	36,70%	36,01%	37,20%	36,40%	36,40%
EBIT(1-T)	3.696	4.262	4.877	5.829	6.658
d&a	1.616	1.573	1.568	1.627	1.651
change in NWC	0	-503	-750	-487	-67
capex	1.096	1.221	1.312	1.389	1.442
FCFF	4.216	5.117	5.883	6.554	6.934

Source: Company reports and own calculations

2.2.Forecasted

	2015E	*2016E*	*2017E*	*2018E*	*2019E*
EBIT	13.725	14.564	15.469	16.444	17.488
Taxes	36,54%	36,54%	36,54%	36,54%	36,54%
EBIT(1-T)	8.710	9.242	9.817	10.435	11.097
d&a	1.695	1.799	1.911	2.031	2.160
change in NWC	-104	-33	-21	-9	1
capex	3.988	4.291	4.604	4.929	5.262
FCFF	6.521	6.783	7.145	7.546	7.994
Discount Factor	0,94	0,89	0,84	0,79	0,75
Terminal Value					221.151
PV(FCF)	6.150	6.033	5.994	5.971	170.988

Source: Company reports and own calculations

3. Discounted Cash Flow Valuation – Output

Enterprise Value	**195.136**
Market Value of Debt	43.511
Cash	1.723
Equity	153.348
Shares Outstanding	1.307
Price Per Share	**117,33**

Source: Company reports and own calculations

4. Earnings Per Share Calculation

	2014	*2015E*	*2016E*	*2017E*	*2018E*	*2019E*
Net Income	6345	8299	8831	9406	10025	10687
# shares	1307	1307	1307	1307	1307	1307
EPS	4,85	6,35	6,76	7,20	7,67	8,18
growth	***24,41%***	***30,81%***	***6,41%***	***6,51%***	***6,58%***	***6,60%***
Payout Ratio	39%	37%	44%	52%	50%	50%
Dividends Paid to Shareholders	2530	3085	3872	4861	5012	5343
DPS	1,88	2,36	2,96	3,72	3,84	4,09

Source: Company reports and own calculations

5. Dividend Discount Model Valuation – Output

PV Total Dividends	17684
PV Terminal Value	76396
Total Equity	94080
# shares	1307
Po	**71,98**

Acronyms

APV – Adjusted Present Value

CAGR – Compound Annual Growth Rate

CAPEX – Capital Expenditures

CAPM – Capital Asset Pricing Model

COGS – Cost of Goods Sold

DCF – Discounted Cash Flows

DDM – Dividend Discount Model

EBITDA – Earnings Before Interests, Taxes, Depreciations and Amortizations

EBIT – Earnings Before Interests and Taxes

EVA – Economic Value Added

FCFE – Free Cash Flow to the Equity

FCFF – Free Cash Flow to the Firm

PV(ITS) – Present Value of Interest Tax Shield

PP&E – Property Plant and Equipment

ROIC – Return on Invested Capital

WACC – Weighted Average Cost of Capital

NWC – Net Working Capital

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