Valuation of private firms in the Icelandic tourism sector
The case of an Icelandic hotel group

Júni, 2018
Nafn nemanda: Ástgeir Ólafsson
Kennitala: 290495-2029
Leiðbeinandi: Stefan Wendt
Yfirlýsing um heilindi í rannsóknarvinnu

Verkefni þetta hefur hingað til ekki verið lagt inn til samþykktis til prófgráðu, hvorki hér lendis né er lendis. Verkefnið er að akstur rannsókn undirritaðar / undirritaðraar, nema þar sem annað kemur fram og þar visað til skv. heimildaskráningarstaðlaði með stöðlum tilvísunum og heimildaskrá.

Með undirskrift minni staðfesti ég og samþykki að ég hef lesið siðareglur og reglur Háskóls í Reykjavík um verkefnavinnu og skil þær afleidningar sem brot þessara regla hafa í för með sér hvað varðar verkefni þetta.

27,05,2018 290995-2019 Æstgarð Olafsson
Dagsetning Kennitala Undirskrift
Abstract
The purpose of this thesis was to explore whether traditional private firm valuation techniques could be used to value a private firm in the Icelandic hotel market. The first part of this thesis consists of an overview of the different methods used to value private firms, how they are implemented and the inputs required. The methods are for the most part the same that are used to value public firms. But the difference between them lies in the fact that there is not as much data available on private firms as there are on public firms. In the second part of the thesis, valuation was done on Íslandshótel hf. using free cash flow to firm as the discounted cash flow method and EV/EBITDA multiples for the relative valuation. Results of the valuation shows that there is a substantial difference between the discounted cash flow and the relative valuation but the discounted cash flow model is quite sensitive to changes in input factors.
Preface

This Bachelor thesis is a part of a B.Sc. degree in Business Administration at Reykjavík University. The thesis accounts for 12 ECTS and was conducted during the period of December 2017 until May 2018. I would like to give special thanks to my instructor Dr. Stefan Wendt for his valuable advice and patience during the work on the thesis. I would also like to thank Geir Finnsson and Kjartan Þórisson for their help with proofreading the thesis. Last but not least I would like to thank my friends and family for their support throughout the last three years. You know who you are.
Table of Contents

1. Introduction ........................................................................................................................................ 1

2. Valuation methods of private firms ...................................................................................................... 3
   2.1. Absolute valuation – Income approach ......................................................................................... 3
       2.1.1. Free cash flow ..................................................................................................................... 4
       2.1.2. Capitalized cash flow and excess earnings method ............................................................... 5
   2.2. Input factors of free cash flow valuation .......................................................................................... 6
       2.2.1. Free cash flow to the firm ..................................................................................................... 6
       2.2.2. Free cash flow to equity ....................................................................................................... 7
       2.2.3. Estimation issues for free cash flow of private firms ............................................................. 7
       2.2.4. Weighted Average Cost of Capital ....................................................................................... 8
       2.2.5. Cost of debt .......................................................................................................................... 8
       2.2.6. Required return on equity - Capital Asset Pricing Model ..................................................... 9
       2.2.7. Betas of private equity firms ................................................................................................ 10
       2.2.8. Terminal Value .................................................................................................................... 13
   2.3. Relative valuation – Market approach ............................................................................................... 14
       2.3.1. Guideline public company method ......................................................................................... 14
       2.3.2. Guideline transactions method ............................................................................................. 15
       2.3.3. Prior transactions method ..................................................................................................... 15
   2.4. Asset based method .......................................................................................................................... 16
   2.5. Discounts and premiums for private firm valuation .......................................................................... 16
       2.5.1. Value of control ................................................................................................................... 16
       2.5.2. Value of Liquidity ................................................................................................................ 17

3. Company and industry overview ........................................................................................................... 19
   3.1. About Íslandshótel ......................................................................................................................... 19
   3.2. Hotel industry in Iceland ................................................................................................................. 20
   3.3. Risk factors ..................................................................................................................................... 20

4. Data and methodology ............................................................................................................................ 23
   4.1. Free cash flow valuation ................................................................................................................ 23
   4.2. Relative valuation .......................................................................................................................... 24

5. Valuation of Íslandshótel ....................................................................................................................... 25
   5.1. Free cash flow to firm – valuation assumptions ........................................................................... 25
5.1.1. Revenue growth ............................................................................................................. 25
5.1.2. EBITDA and EBIT ........................................................................................................ 26
5.1.3. Depreciation and Amortization .................................................................................. 26
5.1.4. Net working capital ..................................................................................................... 27
5.1.5. Capital expenditures ................................................................................................... 28
5.1.7. Required return on equity .......................................................................................... 29
5.1.8. Cost of debt ................................................................................................................ 30
5.2. Relative valuation assumptions .................................................................................... 30

6. Results and discussion ....................................................................................................... 32
6.1. Free cash flow valuation ............................................................................................... 32
6.1.1. Sensitivity analysis on FCFF inputs ........................................................................ 33
6.1.2. Analysis of premium and discounts ....................................................................... 34
6.2. Relative valuation .......................................................................................................... 35

7. Discussion and conclusions ............................................................................................... 36

Table of figures

Figure 1. Íslandshótel’s revenue 2012-2017 ........................................................................ 19
Figure 2. Proportion of tourists by market area in 2017 ...................................................... 22

Table of tables

Table 1. Estimated revenue growth. ....................................................................................... 25
Table 2. EBITDA 2012-2017. .............................................................................................. 26
Table 3. Depreciation and adjusted depreciation ratio 2012-2017. .................................... 27
Table 4. Net working capital 2015-2017. ............................................................................ 28
Table 5. Capital expenditures 2012-2017. ......................................................................... 28
Table 6. Weighted average cost of capital. .......................................................................... 29
Table 7. CAPM and beta ...................................................................................................... 30
Table 8. EV/EBITDA multiples ............................................................................................ 31
Table 9. DCF model ............................................................................................................. 32
Table 10. Value of equity using FCFF ................................................................................ 33
Table 11. Sensitivity analysis: WACC and terminal growth .............................................. 33
Table 12. Sensitivity analysis: WACC and EBITDA ratio .................................................. 34
1. Introduction

From 2010-2016 the Icelandic economy saw a surge in tourist arrivals with an annual growth of 24.4% for these years with the number of visitors going from 488,000 in 2010 to 1,792,000 in 2016 (Icelandic Tourist Board, 2017). In the year of 2017 the number of tourist arrivals was 2.2 million (Icelandic Tourist Board, 2018) and is forecasted to be 2.5 million in the year of 2018 (Isavia, 2017). The International Monetary Fund's (IMF) report on the Icelandic economy from 2015 finds that empirically, surges in tourism tend to be durable. According to the IMF nearly all countries which have seen travel exports to GDP ratio increase by at least four percentage points in a ten-year period saw the ratio remain above its pre-surge levels. As a consequence, the Icelandic economy has most likely changed permanently, with the tourism industry counting for roughly 10% of the nation's GDP in 2016 up from 5% in 2010 (Greiningardeild Arion Banka, 2017).

The surge in tourist arrivals has led to a substantial increase in the number of hotel rooms in Iceland. In the years from 2010 to 2016, 5,012 hotel rooms were added to the market which makes up for an increase of 51.2% (Icelandic Tourist Board, 2017). This addition of rooms is a direct consequence of investments in hotels and guesthouses. With most of these investments made by Icelandic investors and Icelandic companies, it is likely that international investors and domestic institutional investors will take advantage of entry opportunities in the market in coming years, while early entrants and other private capital seek to divest and exit (GAMMA Advisory, 2018). This development has already started. In August of 2017, American investors bought 75% stake in the Icelandic hotel chain, Kea Hotel for 5.5 billion Icelandic kronas (ISK) from Icelandic investors in the year of 2017 (Ægisson & Jónsson, 2017). On May 18, 2018, Icelandair Group announced that its hotel group, Icelandair Hotels is for sale ("Icelandair Group hefur söluferli á hótelrekstri og tengdum eignum", 2018). According to Icelandair Group CFO, the entire hotel group will be sold or at least a majority stake and that there is a substantial interest from both Icelandic and foreign investors (Ingólfsson, 2018).

Since there is no Icelandic hotel company listed on the domestic stock exchange, investments in new or existing hotel companies would be considered as an investment in private firms. When it comes to transactions between buyers and sellers of private firms, valuation plays a significant role. But it is also essential when it comes to financial reporting, tax reporting
secured lending and internal purposes (Pinto, Henry, Robinson, Stowe & Wilcox, 2015; Harper, 2017).

The purpose of this thesis is to explore whether traditional private firm valuation techniques can be used to value a company in the Icelandic hotel market. To be precise, this thesis aims to shed light on the value of the Icelandic hotel company Íslandshótel. Íslandshótel is the operator of the largest hotel chain in Iceland, Fosshótel (15 hotels), along with Grand Hotel Reykjavík and Hotel Reykjavík Centrum. In total Íslandshótel has 1,750 hotel rooms and revenue of roughly 11.2 billion ISK in 2017. Majority of the company is owned by Olafur Torfason, but 22.8% of the firm is owned by the Icelandic private equity funds Edda and Kjölfesta along with three Icelandic pension funds (Íslandshótel, 2018). With Kjölfesta’s lifetime coming to an end in 2019 ("Samþykktir félagsins," n.d.) their stake in the company will most likely be up for sale in the coming future. Besides the other essential factors of valuation such as for tax and financial reporting purposes, it is vital for both buyers and sellers of the stake to have an idea of the value of the company.

This Bachelor thesis will be structured as follows: In section 2, the main valuation concepts for private firms that have been developed so far will be presented. This section covers both the valuation techniques, input factors of those techniques and the ways private firm valuation differs from the valuation of public firms. Section 3 covers a discussion about Íslandshótel, the hotel industry in Iceland and risk factors. In section 4, the data and methodology used in the valuation is presented. For the valuation, both discounted cash flow (DCF) and relative valuation will be used. For the discounted cash flow, free cash flow to firm is used since Íslandshótel has debt on its balance sheet. For the relative valuation, the guideline public company method will be used due to the lack and outdated transaction data in the Icelandic hotel industry. Section 5 consists of the valuation assumptions for both the DCF and the relative valuation and section 6 the results of the valuation is presented. This part will also consist of sensitivity analysis of the company’s value where the impact of both growth rate, cost of capital EBITDA ratio will be tested to evaluate the soundness of the value that will be estimated using the DCF. Sensitivity analysis of discounts and premiums for liquidity and control of the firm's equity is also included. In section 7 discussion and conclusions of the results will be provided.
2. Valuation methods of private firms

Valuation experts divide methods of private firm valuation into three main approaches. These are the income approach, the market approach, and the asset-based approach. The income approach is categorized as an absolute valuation model which seeks to find the intrinsic value of an asset. The market approach is a considered as a relative valuation model which estimates the fair market value of equity. Estimating the asset’s value relative to the value of a similar asset by using price multiples. (Pinto et al., 2015). The classification of the asset-based approach is, on the other hand, a bit more complex. Pinto et al. (2015) define the asset-based method as absolute valuation while Damodaran (2012) argues that the method is not an alternative to the income nor the market approach. In fact, these are the same main approaches that are recommended by Rushmore (1992) to value hotels.

The main difference between the absolute and relative approaches is reflected in the fact that intrinsic value is based on what the valuator believes to be the fundamental worth of an asset while the fair market value is based on existing data. When willing and informed buyers and sellers have the same view of the fundamental value of an asset, the intrinsic value and the fair market value become equal (Feldman, 2005).

2.1. Absolute valuation – Income approach

Absolute valuation revolves around the concept of finding the intrinsic value of the firm, which can differ from the market price of the firm (Pinto et al., 2015). It varies because intrinsic value cannot be defined or justified fully. If one goes and asks ten analysts what the value of a specific firm is, it is very highly likely that ten different answers would be received (Bélyácz & Kovács, 2010). Damodaran (2010) defines intrinsic value as the value that would be assigned to an asset by an analyst who knows all information thoroughly available at the time of valuation and also has a flawless valuation model. The intrinsic value is derived by using a discounted cash flow (DCF) model which bases on the assumption that if an asset has a cash flow, it has an intrinsic value that that reflects its cash flow potential and the risk linked to it. The DCF model finds the present value of the asset’s expected cash flows, discounted back at a discount rate that reflects the how risky these cash flows are (Damodaran, 2012).
The income approach assumes that the value of an asset is based on expectations of future cash flows. It converts future economic benefits into its preset value equivalent. The income approach in private firm valuation has three forms to it. They are the free cash flow method, the capitalized cash flow method and excess earnings method (most often referred to as the residual income method) (Pinto et al., 2015).

2.1.1. Free cash flow

Cash received today is more valuable than the same amount of cash received in the future ("Time Value of Money", n.d.). According to Damodaran (2012), the discounted cash flow (DCF) model is the foundation on which other methods of valuation are built upon and anyone that understands the fundamentals of it will be able to analyze and interpret other approaches.

The DCF or free cash flow (FCF) model finds the intrinsic value of an asset as the present value of the asset’s expected cash flows, discounted back at a discount rate that reflects how risky these cash flows are (Pinto et al., 2015). The general formula for DCF can be expressed as:

\[
Value = \sum_{t=1}^{n} \frac{CF_t}{(1 + R)^t} + \frac{TV_n}{(1 + R)^n}
\]

In essence, this is a two or multistep model where the growth of cash flows is expected to be different in the first stage than in the second stage. \(CF_t\) is the cash flow generated by the firm for each year in period \(t\), \(TV_n\) is the terminal value of the company in year \(n\) and \(R\) is the appropriate discount rate that reflects the risk of these cash flows (Pinto et al., 2015).

The free cash flow method can be split into two parts, free cash flow to the firm (FCFF) and free cash flow to equity (FCFE). The main difference between the two approaches is that FCFF valuation gives the valuator the value of the firm as the present value of future FCFF discounted at the weighted average cost of capital (Mielcarz & Mlinarič, 2014) and can be expressed as:

\[
Value \text{ of firm} = \sum_{t=1}^{n} \frac{FCFF_t}{(1 + WACC)^t} + \frac{TV_n}{(1 + WACC)^n}
\]

while the FCFE method is used to obtain the value of equity by discounting FCFE at the required return of equity expressed as:
Value of firm = \sum_{t=1}^{n} \frac{FCFE_t}{(1 + r)^t} + \frac{TV_n}{(1 + r)^n}

FCFE can be considered as a measurement of the cash flow available to shareholders in the form of a dividend or stock buybacks after other suppliers of capital has been paid. On the other hand, FCFF is the available cash flow to all suppliers of capital (Gardner, McGowan, Jr & Moeller, 2012). How the variables of the DCF formula and FCF are derived will be discussed in section 2.2.

In theory, the FCFF and FCFE should yield the same valuation of equity, given that all inputs of the two methods reflect the same assumptions (Pinto et al., 2015). The valuator would do it directly by using the FCFE or indirectly by using the FCFF. When using the FCFF, the enterprise value or value of the firm is derived. Value of equity is then found by the following equation:

\[
\text{Equity value} = \text{Firm value} + \text{cash and cash equivalents} + \text{Non operating assets} - \text{Market value of debt}
\]

2.1.2. Capitalized cash flow and excess earnings method

The capitalized cash flow method (CCM) is a single stage, stable growth, free cash flow model. This model is essentially much alike the Gordon growth model, developed by Shapiro (1956) and Gordon (1962). The only difference to the FCF model is that the model assumes growth to be constant for the whole forecasting time and therefore estimates value on the expression for growing perpetuity and can be used both at the firm and equity level (Pinto et al., 2015). The CCM can be expressed as:

\[
Value = \frac{CF_1}{R - g}
\]

\(CF_1\) is the free cash flow estimated in one year from the valuation, \(R\) is the discount rate and \(g\) is the terminal growth rate.
The excess earnings method (EEM) is about estimating the earnings that remain after amounts that reflect the required returns to working capital and tangible assets have been deducted. This residual amount of earnings is then capitalized by using the growing perpetuity formula from the capitalized cash flow model to obtain an estimate of intangible assets (Pinto et al., 2015).

Although both the capitalized cash flow and excess earnings methods are among income approaches, both methods are rarely used for valuation of private firms. If the company being valued is not expected to grow at a constant rate, FCF methods that use a series of discrete cash flows estimations are theoretically preferable. Both methods are mostly used when valuing small firms. The CCM can be appropriate for valuing a firm where no projections are available and stable future operations can be expected while the EEM method is mostly used for valuing intangible assets and very small firms where other valuation approaches are not feasible (Pinto et al., 2015). Neither the CCM or EEM are considered to be appropriate for valuing Íslandshótel. This is due to the fact that the company is not expected to grow at constant return for the forecasting period and does not have a substantial amount of intangible assets. Because of this, further discussion of these methods will not be within the scope of this thesis.

2.2. Input factors of free cash flow valuation

2.2.1. Free cash flow to the firm

FCFF can be defined as the cash flow that is available to the company’s suppliers of capital after all operating expenses and taxes have been paid and all required investments in working and fixed capital have been made. The company’s suppliers of capital consist of common stockholders, bondholders and in some cases, preferred stockholders (Pinto et al., 2015). The formula for FCFF can expressed as:

\[
\text{FCFF} = \text{EBIT} \times (1 - \text{tax rate}) + \text{Depreciation & amortization} - \text{Investment in fixed capital} - \Delta \text{net working capital}
\]

FCFF can also be derived from the statement of cash flows. Then the expression becomes:

\[
\text{Cash flow from operations} + (\text{Interest expense} \times (1 - \text{tax rate})) - \text{Investment in fixed capital}
\]
2.2.2. Free cash flow to equity

FCFE is the cash flow that is available to holders of common equity in a company, after all operating expenses, interest, and principal payments have been paid, and necessary investments in working capital and fixed capital have been made. To find FCFE the valuators must subtract the after-tax value of interest paid to holders of debt and add net borrowing (Pinto et al., 2015). The formula for FCFE can therefore be expressed as:

\[ FCFE = FCFF - Interest\ expense \times (1 - tax\ rate) + net\ borrowing \]

(8)

2.2.3. Estimation issues for free cash flow of private firms

The valuation of private firms can in some cases need serious adjustments to forecast the free cash flow of a company or the normalized earnings. The need for adjustments occurs especially when potential acquirers of private firms find that current earnings emulate inefficiencies or redundancies that draw away from their purpose as a baseline for estimating future earnings under new control. In such case, the valuators seek to understand the accurate capacity of earnings and cash flow of the firm if it is acquired and run efficiently (Pinto et al., 2015).

When adjusting earnings of a private firm the valuators seek to estimate the normalized earnings of the firm. Normalized earnings are defined by the International Glossary of Business Valuation Terms (as cited in Pinto et al., 2015) as “economic benefits adjusted for nonrecurring, non-economic or other unusual items to eliminate anomalies and/or facilitate comparisons.” These anomalies can concern things as discretionary expenses, effects of transactions between the private firm and the owners working for the business, above-market salary expenses to owner or family members, the company using property owned by the business owner and different tax rates. All of these anomalies have a more substantial relative impact for smaller companies (Pinto et al., 2015; Feldman, 2005; Damodaran 2012). Since Íslandshótel is not specified as a small company, being the 73rd largest in Iceland in terms of revenue (Hafliðason, 2018) free cash flow anomalies as mentioned earlier, are not assumed to be a concern. Therefore, there will not be a further discussion of estimation issues of the free cash flow of private firms.
2.2.4. Weighted Average Cost of Capital

The weighted average cost of capital (WACC) of a firm is the average of its equity and debt cost of capital. The WACC is the overall required rate of return of the firm’s suppliers of capital or the weighted average of required rates of return for the component sources of capital. The suppliers of firm’s capital are equity holders, debtholders and in some cases preferred stockholders. The WACC is relevant to the valuator when he uses the total firm value approach such as the FCFF method. Using the WACC to discount expected future cash flows, the total value of these claims is estimated (Pinto et al., 2015). The equation for WACC can be expressed as:

$$ WACC = \frac{D}{D+E} \cdot r_d (1 - T) + \frac{E}{E+D} \cdot r_e $$

(9)

D is the debt of the firm, E is the equity of the firm so $\frac{D}{D+E}$ gives the weight of debt and $\frac{E}{E+D}$ gives the weight of equity. $r_d$ is the pre-tax required rate of debt which is derived from interest rates on the firm’s debt. $r_e$ is the required return on equity, derived from the CAPM (Berk, DeMarzo & Harford, 2015). The pre-tax required return on debt is then multiplied by 1 minus the corporate tax rate to adjust the pre-tax rate downward to reflect the tax deductibility of corporate interest payments. The required return on equity stays the same since distributions to equity are assumed not to be deductible by firms (Pinto et al., 2015).

2.2.5. Cost of debt

The cost of debt is defined by Frykman and Tolleryd (2003) as the cost for a firm to attract capital from external lenders. That is the interest rate that the lender requires to lend money to the firm. The cost of debt is in regular, calculated on the market value of debt and by dividing the interest expense from profit and loss account by the liabilities on the balance sheet. According to Damodaran (2012), when estimating the cost of debt of public firms, the yields on the bonds they issue or their credit rating is used to get the default spread. Since private firms are in general not rated nor have bonds outstanding one of the following approaches has to be used:

If the private firm has borrowed money recently (in past few weeks or months before valuation), the interest rate on the borrowing can be used as the cost of debt. The problem with this method is that since the cost of debt has to reflect current cost, the book value of interest
rate on debt issued in the past is in general, not a good measure of the cost of debt (Damodaran, 2012).

If the private firm is being valued for initial public offering, the valuator can assume that the cost of debt for the firm will move toward the average cost of debt for the industry of the firm. Here, the valuator is essentially assuming that the private firm, once public, will structure its debt policy resemble those of comparable firms (Damodaran, 2012).

The third option to estimate the cost of debt for a private firm is to use interest coverage ratios to estimate synthetic credit rating and then use the default spread in these ratings to arrive at the cost of debt. To adjust for the fact that private firms are in most cases smaller and riskier than most public firms, the valuator would use the relationship between interest coverage ratios and ratings for a subset of smaller, publicly traded firms (Damodaran, 2012). This kind of analysis could be done, for example, by using models like the Altman Z score model. When using the model, the valuator would:

1. Estimate the firm’s Z score using the Altman model.
2. Convert the Z score to a debt rating.
3. Determine the cost of debt for a given maturity as the rate in a Treasury security of equivalent maturity plus expected yield spread of debt relative to the rate on the Treasury security.
4. Add an additional risk premium to reflect the firm size.

(Feldman, 2005, page 82)

It is important to note that although most private companies do not have outstanding public listed debt, some companies do. In 2017, Íslandshótel issued bonds of 2,860 million ISK. The bonds are index-linked and carry 3.95% interest rate (“Útgáfulysing”, 2017).

2.2.6. Required return on equity - Capital Asset Pricing Model

The required return on equity is one of the essential concepts of free cash flow valuations. It is the discounting factor when using FCFE and is also a part of the WACC which consists of required return on equity and debt for FCFF valuation (Berk et al., 2015). The Capital Asset Pricing Model (CAPM) was the first coherent model that provided an answer to the question of how the risk of an investment affected its expected return and therefore its required return (Perold, 2004). The CAPM was developed and proposed as a model of risk and return in the
1960s by Willam Sharpe (1964, 1964), Jack Treynor (1961), Litner (1965) and Mossin (1966). The CAPM is, in essence, an equation for a required return that should hold in equilibrium if its assumptions are met. The model is based on ten assumptions among which is the assumption that investors are risk averse and that they deal with the homogeneity of expectations. This means that investors are assumed to be concerned with mean and variance of returns and are assumed to identical expectations concerning the necessary inputs to the portfolio (Elton, Gruber, Brown & Goetzmann, 2015). The CAPM equation is expressed as:

\[
E(R_i) = R_f + \beta_i [E(R_m) - R_f]
\]  

(10)

Where \(R_i\) is the expected return on asset \(i\), \(R_f\) is the risk-free rate or where the rate of government bonds of developed democracies is often used is, \(E(R_m)\) is the expected return on the market portfolio with \([E(R_m) - R_f]\) being the equity risk premium which is the excess return on the market portfolio. \(\beta_i\) is the expected percentage change in the excess return in of security \(i\) for a 1 percentage change in the excess return of the market (or benchmark) portfolio, that is, beta represents how risks that affect the overall market are amplified or dampened in a given stock or investment (Berk, et al., 2015). The equation for beta is:

\[
\beta_{iM} = \frac{COV(R_iR_m)}{\sigma^2(R_m)}
\]  

(11)

\(\beta_{iM}\), the market beta of asset \(i\), is the covariance of its return with the market divided by the variance of the market return. Therefore, beta can be interpreted as a measure if the sensitivity of an asset’s return to variation in the market return. \(\beta_{iM}\) is in economic terms, the proportional risk each dollar invested in asset \(i\) contributes to the market portfolio (Fama & French, 2004). The beta of an asset is a measure of its market or systematic risk which cannot be diversified away (Pinto et al., 2015). The beta of the market (or benchmark) portfolio is 1, Thus beta of 1 represents the average exposure to systematic risk. The difference in betas between assets or industries are related to the sensitivity of each stock or industry profit to the general health of the economy. Assets with betas higher than 1 are more sensitive to events in the business cycle than companies with a beta lower than 1 (Berk et al., 2015).

2.2.7. Betas of private equity firms

When deriving the required return on equity for public companies using the CAPM the measure of risk is usually estimated using historical stock prices. The vacancy of historical prices for
private firms and the failure on the part of many owners of private firms to diversify can create problems when estimating and using betas for private firms. When there is no information on historical prices, as in the case of private equity, there are three ways to estimate betas. They are accounting betas, fundamental betas and bottom-up betas (Damodaran, 2012).

Accounting betas can be used because while there is no price information available for private firms, information about accounting earnings is. To derive accounting beta, changes in a private firm's accounting earnings would be regressed against changes in earnings for an equity index (such as S&P 500 or OMXI8) to derive an estimate of accounting beta:

\[ \Delta Earnings_{private firm} = a + b \Delta Earnings_{OMXIB} \]  
(12)

The slope of the regression (b) is the accounting beta for the firm. Operating earnings would give unlevered beta and using net income would provide a levered or equity beta. Although this method might be feasible, there are two significant limitations to it. One is that private firms usually measure and publish earnings only once a year which would lead to regression with few observations and substantially limited statistical power. The other is that earnings are in many cases smoothed out and subject to accounting judgments that can lead to mismeasurement of accounting betas (Damodaran, 2012). St-Pierre and Bahiri (2006) also point out in their research that accounting beta does not seem to establish a global measure of small and medium-size private firms since it only measures financial risk and not commercial, technological, management and entrepreneurial risk components.

Through the years, many researchers have attempted to relate the betas of publicly traded firms to observable fundamental variables like earnings growth, variance in earnings and debt ratios. In 1970, Beaver, Kettler, and Scholes (as cited in Damodaran, 2012) inspected the relationship between betas and seven variables: dividend payout, asset growth, leverage, liquidity, asset size, earnings variability and accounting beta. Since all of these independent variables are available from private firms’ annual reports, regression could be run to estimate the fundamental beta for business. But as with any regression, there will always be problems that originate from concepts such as bias, variance and mean square error of the regression as pointed out by Rosenberg and Guy (1995).
The valuation of publicly traded firms involves the use of unlevered betas to estimate bottom-up betas. This is done because of the low standard error estimate which is due to the averaging of a large number of firms and the forward-looking nature of the estimates. Bottom-up betas can also be estimated for private firms, and they have the same advantages as they do for publicly traded firms. Therefore, the beta for a private hotel chain for example can be estimated by looking at the average betas for publicly traded hotel chains (Damodaran, 2012). These betas need on the other hand to be adjusted differences in financial or operating leverage in the final estimate using this equation for levered beta:

$$
\beta_Y = \left[ 1 + \left( \frac{D}{E} \right) \ast (1 - T) \right] \ast \beta_U
$$

(13)

$\beta_E$ is the levered beta, $\left( \frac{D}{E} \right)$ is the debt-to-equity ratio, $T$ is tax rate, and $\beta_U$ is the unlevered beta.

If the valuator needs to unlever the beta the equation is:

$$
\beta_U = \left[ \frac{1}{1 + \left( \frac{D}{E} \right) \ast (1 - T)} \right] \ast \beta_E
$$

(14)

The valuator will, however, run into problems when adjusting unlevered betas for different financial leverage because the debt-to-equity ratio used should be market value ratio. While many valuators use the book value of debt-to-equity to substitute for the market ratio, Damodaran (2012) suggests two alternatives. One is to assume that the private firm’s market debt to equity ratio will mirror the average for the industry:

$$
\beta_{private\ firm} = \beta_U \left[ 1 + (1 - T) \ast \left( \frac{industry\ average\ debt}{Equity} \right) \right]
$$

(15)

The other one is to use the private firm’s target or debt-to-equity ratio to estimate the beta. This does, however, depend on whether the firm’s management is willing to specify what the target is. Optimal debt ratio could also be used if it can be estimated. Then the beta can be expressed as:

$$
\beta_{private\ firm} = \beta_U \left[ 1 + (1 - T) \ast \left( \frac{target\ (or\ optimal)\ debt}{Equity} \right) \right]
$$

(16)


2.2.8. Terminal Value

When using a two or multi-stage, free cash flow model, the valuator splits the valuation into two time periods. Since it is almost impossible to forecast firms cash flows into infinity, the valuator derives a terminal value for the cash flows after a certain period where it is estimated that a company has reached steady state of growth (Damodaran, 2012). According to study by Gompers, Kaplan and Mukharlyamov (2016) on 79 private equity firms, 96% of managers use a five-year forecast period before calculating a terminal value. Damodaran (2012) presents three ways to derive the terminal value.

The liquidation method, does not assume that the firm is going concern but assumes that the firm will cease operations at point of time in the future where it will sell its assets to the highest bidder. There are two ways to derive terminal (liquidation) value using this method. One is use the book value of assets and adjust it for projected inflation during the period. The other approach to liquidation value would be to estimate it based on earning power of the assets by finding the present value of expected cash flows during the specific timeframe.

The multiple approach finds the terminal value by applying a multiple to the firm’s earnings or revenues in the year of terminal value and assumes that the firm being valued is a going concern. Although this method is simple, Damodaran (2012) points out that this method makes the free cash flow method become a relative valuation since the terminal value makes up for a large part of the FCF valuation. This makes a dangerous mix, since free cash flow valuation is about finding the intrinsic value of a firm and not the relative one.

The stable growth model assumes that the firm being valued is a going concern since firms can reinvest some of their cash flows back into new assets that extend their lives. When using this method, the valuator assumes that cash flows will grow a constant rate forever. According to Damodaran (1996) (as cited in Petersen, Plenborg & Scholer, 2006) the stable growth rate cannot be larger than nominal growth rate in the economy that the firm operates in. The terminal value using the stable growth method can be expressed as:

\[
Terminal\ value_t = \frac{Cash\ flow_{t+1}}{(r - stable\ growth)}
\] (17)
The cash flow and discount rate will depend on whether FCFF or FCFE method is being used. If the valuator uses the FCFF method, then FCFF is used for cash flow and WACC for \( r \), if FCFE is used then FCFE would stand for cash flow and required return on equity for \( r \) (Damodaran 2012).

2.3. Relative valuation – Market approach

When using relative valuation or market approaches, the valuator bases his valuation on the price in transactions or the market price of similar firms. Instead of trying to find the intrinsic value of the firm, the fair market value of the equity interest in a private company is estimated by using a direct comparison to public companies and acquired private enterprises (Damodaran, 2012). The fair market value can be defined as the price of an asset or liability in a transaction between a willing buyer and seller when the buyer is under no pressure to buy and the seller is under no pressure to sell. This concept assumes that both the buyer and the seller have complete information of any material aspect of the underlying investment (Pinto et al., 2015). There are three primary forms of the market approach that are used in private equity valuations. They are the guideline public company method, the guideline transactions method and the prior transaction method (Pinto et al., 2015).

The idea behind relative valuation is that similar assets should be sold at similar prices. The firm that is being valued is called the target company while the firm or firms that operate in the same industry and have the same business characteristics are referred to as the comparable or peer companies. The comparison is done by assuming the ratio of value to some firm-specific variable is the same across firms. This ratio is called a multiple and the firm-specific variable is the value driver. This is usually done by selecting a group of 8-15 comparable companies and then take the average of the multiples of the comparable companies. The value of the target company is then estimated by multiplying the multiple by the firm-specific variable (Ho, Liao & Kim, 2011; Koller, Goedhart & Wessels, 2015).

2.3.1. Guideline public company method

The guideline public company method (CPCM) is, in essence, a valuation of a private firm based on the multiples of similar public companies. The valuation process involves identifying a group of comparable public companies, deriving the relevant pricing multiples for the comparable companies and at last adjust the multiples to reflect the relative risk and growth prospects of the target company to the comparable public companies. This then leads to a
conclusion of value (Pinto et al., 2015). According to Koller et al. (2015), it is suggested that the valuator should use forward-looking multiples which are based on estimated earnings instead of backward-looking or trailing, which are based on past data. This is because forward-looking multiples are consistent with the principles of valuation which is to estimate future results. This is supported by empirical data such as Kim & pet (1999) and Liu, Nissim & Thomas (2002) which find that using forecasted earnings improves accuracy of multiple valuation substantially (as cited in Koller et al., 2015).

2.3.2. Guideline transactions method

The Guideline transactions method (GTM) is in many ways similar to the guideline public company method. The main difference lies in the GTM is based on pricing multiples derived from acquisitions of public or private companies (Steffen, 2015). The method uses available transactions data available on publicly reported acquisitions that is compiled from public filings by the parties of each transaction. Data on transactions that is not subject to public disclosure may also be available from certain transaction databases. According to Pinto et al. (2015), with all other things being equal, the GTM method is the most relevant evidence for valuation of a controlling interest in a private company. On the other hand, there are a number of factors that the valuator needs to consider when using the method. These factors include the pricing of strategic acquisitions, contingent considerations, noncash consideration, availability of meaningful transactions for a specific firm and changes between transaction date and valuation date.

2.3.3. Prior transactions method

According to Pinto et al. (2015) “the prior transaction method (PTM), is generally the most relevant when considering the value of a minority equity interest in a company.” The method considers the actual transactions in stocks of the private firm. The method is considered most feasible when transactions data is available, timely and price develops at arm’s length. The main drawbacks of the method arise when transactions are infrequent, when motives of the parties involved are uncertain and if special circumstances surround past transactions. Transactions that take place at different time may also require serious adjustments.
2.4. Asset based method

The asset-based method or cost approach is based on the assumption that the value of ownership of a firm is equal to the fair value of its asset subtracted from the fair value of its liabilities. This method is considered to be the weakest method for valuing an ongoing firm. Therefore, it is rarely used for valuation of going concerns. Consequently, this approach is not applicable for valuation of Íslandshótel. Firms that are operating with nominal profits relative to the values of an asset used and without expectations of doing better in the future might, on the other hand, be valued best using the asset-based method if winding up of operations is assumed (Pinto et al., 2015). The approach is also used in bankruptcy circumstances and can be particularly applicable for the valuation of intangible assets. In such case, however, the analyst needs to make sure whether there is sufficient, dependable data available to estimate all cost components and quantify all obsolescence allowances to estimate the book value of assets and liabilities accurately (Reilly, 2012). Although Pinto et al., (2015) define the asset based method as absolute valuation, Damodaran (2012) argues that the method is not an alternative to neither discounted cash flow or relative valuation model. Although he finds the method as neither absolute nor relative approach, he finds the method more as relative one since the method estimates values based on what similar assets are priced at in the market rather than on their intrinsic value.

2.5. Discounts and premiums for private firm valuation

One of the main differences between the valuation of public and private firms lies in marketability and/or control adjustments that are made to the valuation of private firm equity. The discounts reduce the value derived from absolute or relative valuation while premiums increase the value of these methods (Hitchner, 2011). This section will focus on these discounts and premiums.

2.5.1. Value of control

Houlihan, Lokey, Howard, and Zukin (2001) (as cited in Felder, 2005), state that a controlling equity interest in a firm is more valuable than minority interest since controlling interest gives the ability to effect changes on the business structure and influence the policies of the firm. According to them, the control premiums can vary greatly. The factors that affect the significance of these premiums include: The nature and magnitude of non-operating assets, discretionary expenses and business opportunities not being exploited but also the ability to
integrate the acquired firm into the acquirer’s business or distribution channel and perceived quality of the existing management. Damodaran (2012), states that the value of control should be greater for firms that are run poorly and will be close to zero for well-run firms. This is mainly due to the factors mentioned earlier. According to Pratt et al. (2000) (as cited in Petersen et al., 2006), the average size of control premium in the United States was between 26% to 45% which goes to show that interpretations of control premium can vary greatly due to limited data available to estimate premium.

Since firm is more valuable for investor that has a controlling interest, it is less valuable for an investor that holds a non-controlling interest that needs to be adjust for by using discount for lack of control (DLOC). Lack of control becomes disadvantageous to the investor due to inability to have anything to say about the factors that affect the size of control premiums (Pinto et al., 2015). In this case, the valuation has to be adjusted for using the following formula:

$$DLOC = 1 - \left( \frac{1}{1 + control \ premium} \right)$$

(17)

2.5.2. Value of Liquidity

According to Feldman (2005) valuation of private firms is in most cases done in two steps. First, the private firm is valued as if it is equity would trade on a highly liquid stock exchange. The second step is then to reduce the value by the size of the liquidity discount that has been estimated. This discount for lack of marketability (DLOM) arises because investors would, in general, when they take an equity position, like to have the option to liquidate the position whenever the need arises. The need for liquidation can be both regarding cash flow considerations but may also rise from the investor's willingness to change his portfolio of holdings. Lack of marketability discount is especially important when valuing a non-controlling equity stake in a private firm. Even though the discount due to lack of liquidity is distinctive to lack of control discount, the two are often linked since valuation based on non-control will also require adjustments for lack of liquidity (Pinto et al., 2015).

Damodaran (2012) states that illiquidity discounts are very likely to vary between different firms and buyers. According to him there are five factors that affect the illiquidity discount:
1. Liquidity of assets owned by the firm – Lower discount should be applied to firms that own significant amount of marketable securities and cash rather than firms that own illiquid assets such as factories or other fixed assets.

2. Financial health and cash flows from the firm – A financial healthy firm with positive profits and cash flow should be easier to sell than a company that does not have these characteristics. Therefore, lower discount should be applied.

3. Possibility of the firm going public in the future. – If the firm being valued is likely to go public in the future, the valuator should attach a lower illiquidity discount than if it is likely that the firm will stay private.

4. Size of the firm – As the firm gets larger the discount for illiquidity should become smaller. This is due to the fact that the discount is a percentage of the value of the firm.

5. Desire of liquidity of potential buyers – Long term, cash rich buyers that see little or no need to exit their equity positions are more likely to use much lower discounts for illiquidity than short term investors.

(Damodaran, 2012)
3. Company and industry overview

3.1. About Íslandshótel

The history of Íslandshótel dates back to 1992 when Ólafur D. Torfason, the founder, chairman and largest single owner of Íslandshótel founded Hótel Reykjavík. Ólafur steadily increased the scale of his operations in the following years and in the year of 2008 he bought Fosshótel. Later that year the hotel operations were merged into one hotel firm called Íslandshótel (Eiríksdóttir, 2013). Today, Íslandshótel operates 17 hotels in total. Six of them are located in Reykjavik, three in northern and eastern regions of Iceland, four in the western region and another four in the southern region. All of their hotels either have four or three star ratings with starting price of rooms ranging from 80 to 140 euros. According to the firm’s annual report from 2017, 64.7% of its revenue comes from accommodation, 32.5% from catering and 2.8% from other services. In the year of 2016, Íslandshótel was the second largest hotel firm in Iceland in terms of revenue (9.9 bn ISK) and the most profitable (876 million ISK) (Hafliðason, 2018). The company has seen a rapid growth in revenue in recent years due to surge in tourist arrivals since 2011 followed by development of new hotels. In 2017 the firm’s revenue grew another 14.6% to 11.2 billion ISK. The firm’s growth of revenue in recent years is illustrated in figure 1.

Figure 1. Íslandshótel’s revenue 2012-2017

![Revenue in millions ISK](image)
3.2. Hotel industry in Iceland

As a direct consequence of the surge in tourist arrivals in recent years, Iceland has seen rapid growth in registered overnight stays. The total number of overnight stays increased by 21.2% annually, from 3 million in 2010 to 7.8 million in 2016. In the year of 2017 4.3 million overnight stays were sold in hotels alone which is an increase of 19% year on year. At the same time, the number of rooms in hotels and guesthouses in Iceland has increased by 51.2% with occupancy rates going from 46.9% in 2010 to 71.2% in 2016 for the entire country. In fact, occupancy rate went from 55.3% to 85.5% in the capital area, which happens to be one of the highest occupancy rates in all of Europe’s capital cities, even higher than Dublin, London, Amsterdam and Berlin (Icelandic Tourist Board, 2017; GAMMA Advisory, 2018; Íslandsbanki 2018). Even though the number of hotel rooms has grown substantially, the growth has not managed to keep up with the demand stemming from growth in the number of tourists (GAMMA Advisory, 2018). If forecasted growth in the number of tourists will materialize for the year of 2018, there will be a lack in the number of hotel rooms by 153 in the capital area, according to Íslandsbanki research (2018). There are 381 new hotel rooms estimated to come into the market while the predicted demand is 534. For the hotel market, this situation will likely lead to even higher occupancy rates and higher average daily rate according to GAMMA advisory (2018). It is also worth noting that the Icelandic hotel market is very reliant on foreign tourists. 87% percent of sold overnight stays in 2016 were sold to foreign tourists with only four European countries having a higher rate (Íslandsbanki 2018).

3.3. Risk factors

It is relevant to pinpoint the factors that could have substantial effect on Íslandshótel’s operations. In this section, the risk factors of Íslandshótel will be discussed. Although quantitative analysis on the effects of these risk factors are not within the scope of this thesis they can have a considerable effect on the input factors in the DCF valuation such as growth rate, EBITDA ratio and the WACC. Íslandshótel main risk factors can be considered both external and internal and in some cases, both. They stem from political, economic factors and mother nature. It is important to note that some of these factors are more likely to happen than others. According to the World Economic Forum report on travel and tourism (2017), Iceland is the third safest destination in the world. Therefore, external risk factors that affect tourism
in other countries such as terrorist attacks and epidemic diseases do not have the same impact in Iceland as in most other tourism places around the world.

**Political factors**

Íslandshótel’s political risk is mainly linked to government decisions on taxation and regulations on accommodation. Taxation factors are twofold. First is the lodging tax of 100 ISK for every sold night, originally introduced in the year of 2012. The tax was raised to 300 ISK in September of 2017 ("Gistináttaskattur", n.d.). The other tax issue is the value added tax (VAT). VAT in Iceland has two stages. The lower one is 11% and the higher is 24%. Hotel operations fall under the lower stage ("Skattskylda og skattþrósentur", n.d.). Íslandshótel, is therefore exposed to both of these taxes being raised. Higher taxes mean that the firm will either have to raise prices, which should reduce number of customers according to the theory of price elasticity (Perloff, 2014) or face lower margins.

Regulation risk for Íslandshótel is mostly due to the government’s inability to firmly regulate the operations of Airbnb and other alike operations in Iceland. It is also worth noting that Airbnb has around 30% share in the Icelandic accommodation market (Íslandsbanki, 2018). This is because most of Airbnb accommodation is unregistered and does therefore not pay VAT and other taxes which gives it an unfair competitive advantage in the Icelandic accommodation market. Currently there are around 3,500 rooms and apartments registered on Airbnb’s website but only 312 licenses are registered with local district commissioners ("Vill hert eftirlit með Airbnb", 2018).

**Economic factors**

With Iceland being a small economy with a history of economic volatility (Iceland Chamber of Commerce, 2017), there are several economic factors that affect Íslandshótel. These factors consist of exchange rate, interest rate, labor and foreign economic development. According to Íslandshótel’s financial statement for the year of 2017, the firm defines exchange rate risk as the risk of the company losing money due to unfavorable changes in exchange rate. The firm’s functional currency is Icelandic Krona, although 64% of its revenue is in euros while all of its cost factors is in ISK (Íslandshótel, 2018). The firm does not state whether it hedges its exchange rate risk using forward contracts which makes it difficult to estimate the magnitude of exchange rate risk exposure. The firms interest rate risk is mainly due to changes in interest
rate on adjustable rate debt and cost of debt of future financing. This factor also includes inflation since the firm has index linked debt of roughly 3.4 billion ISK outstanding.

Labor risk in the form of higher wage cost is a concern for every company in Iceland albeit especially for the ones that have a majority of their revenue in foreign currency although their wage cost is in ISK. From beginning of 2015 to March 2018 nominal wages have grown by 28.5% ("Launavísitala frá 1989", 2018). With 80 collective agreements lose in December of 2018 and 149 in March of 2019 ("Ríkissáttasemjari", 2018) there is a risk that the wages will grow even more.

For a firm that has a majority of foreign customers, foreign economic development creates a risk for Íslandshótel. In figure 2, proportion of visitors through Keflavik airport can be seen by market area. Negative changes in factors such as economic growth, unemployment and disposable income of consumer in those regions should according to the law of demand (heimild), decrease the demand for traveling and as a consequence decrease the demand for hotel rooms in Iceland. This effect is also supported empirically, Schubert, Brida and Risso (2011) and Muñoz (2007) both suggest that economic development in foreign countries is an important factor for demand of tourism in the research country.

Figure 2. Proportion of tourists by market area in 2017

![Tourists by market area](source: Icelandic Tourist Board (2018))
Natural disasters

Iceland is a country of volcanoes. From 1902 to 2018 there have been 43 volcano eruptions in Iceland which makes for an average of an eruption roughly every three years ("Eldgos - ýmsar upplýsingar", n.d.). When Eyjafjallajökull erupted in 2010 which led to over 100,000 canceled flights all over Europe, the number of tourists in the months during the eruption decreased by 18% (Greiningardeild Arion Banka, 2016). Although this eruption turned out to be a blessing in disguise as it marked the beginning of the tourism boom in Iceland, it is worth noting that a similar eruption to the one in Eyjafjallajökull could have a serious impact at least in the short term, if it lasts for a long time.

4. Data and methodology

4.1. Free cash flow valuation

For the discounted cash flow valuation, FCFF method was chosen to find the intrinsic value of Íslandshótel’s equity. The FCFF method using eq. (2), discounted at WACC is used since Íslandshótel has debt on its balance sheet and a relatively high debt ratio. Since this method deals with the cash flow available to all suppliers of capital and the firm is expected to have a fluctuating capital structure, the FCFF method is found to be more suitable than FCFE although the two methods should yield the same value of equity. To derive the FCFF, eq. (6) is used. The forecast is divided into two parts. First, different growth is estimated for the first five years and then derive the terminal value u after that, using eq. (17) to find value of the firm. Five-year forecasting horizon is chosen both because of uncertainty around the growth in the Icelandic tourism industry ("Óvissa með ferðaþjónustu áhættuþáttur", 2018) and because of the fact that this time frame is used by large part of managers of private equity firms (Gompers et al., 2016). Equation (4) is then used to derive the value of equity. The firm will first be valued without regards to control and liquidity discounts and premiums. Sensitivity analyses are then provided to show how different discounts and premiums will affect the valuation. Sensitivity analysis is also done for WACC, terminal growth and EBITDA ratio.

The free cash flow valuation starts at the beginning of 2018. The valuation inputs are mainly based on financial statements from 2012-2017, Damodaran’s data sets, Icelandic market data and forecasts on the Icelandic tourism sector. Because of Íslandshótel’s high growth in recent
years, some of the inputs and averages from financial statements do, in some cases, not reflect the future prospects of the firm. In such cases industry averages or other methods have to be used to reflect those numbers. This is because growth in number of tourists is forecasted to slow down from the start of the forecasting timeframe ("Þess vegna spáum við að ferðamönnum fjölgi hægar", 2017). It is worth noting that any figures in tables in sections 5 and 6 are in thousands of ISK.

4.2. Relative valuation

For the relative valuation, the guideline public company method is used which was discussed earlier in the thesis. This method was chosen instead of the guideline and prior transactions methods simply due to lack of data for both of the other methods. For the valuation, 12 months forward EV/EBITDA multiple was used. This multiple was used because the enterprise value (value of the firm) allows us to compare firms with different capital structure (Berk et al., 2015). Forward multiple is chosen because it both corresponds with the forward-looking principle of valuation and is empirically more accurate than relative valuation based on past data as was discussed earlier in this thesis. Value of equity is then derived using the same process as in the free cash flow valuation.

The process of using the guideline public company method starts with identifying relevant peer companies to Íslandshótel. The peer companies were identified using the Thomson Reuters Eikon terminal DataStream. Because no hotel group is listed on the Icelandic stock exchange there is no other option than to use foreign peer companies. We start by looking at the Thomson Reuters Europe hotels, motels & cruise lines index. European peer were companies because Iceland is a part of the European Economic Area and, therefore, Íslandshótel is a part of the European hotel market. Some of the companies in the index do not have a substantial part of their revenue stemming from accommodation and catering operations. These companies were excluded from the index as well as cruise companies. In the end, ten peer companies were chosen for the relative valuation.
5. Valuation of Íslandshótel

5.1. Free cash flow to firm – valuation assumptions

5.1.1. Revenue growth

As mentioned before, Íslandshótel has seen its revenue grow rapidly over the last years. Between 2015 and 2016 the firm’s revenue increased by 43% and by 14.6% between 2016 and 2017. With compound annual growth rate of 23.4%, forecasting revenue growth using historical growth is not of much use. Forecast of revenue growth is shown in table 1. For the first two years we assume that growth will follow, Arion Bank research (2017), conservative forecast of growth in number of tourists for 2018 and 2019 from March 2017 is used. This forecast is used because numbers for the first four months of 2018 suggest that growth in number of tourists is slowing down more than forecasted ("4% fækkun erlendra farþega í apríl", 2018). The growth in these two years is based on better occupancy rates with growth in the number of tourists and on the basis that Fosshótel Mývatn was opened in June of 2017. Therefore, the revenues for that hotel are not reflected in the whole year of 2017. In 2020, Íslandshótel plans to add 250 new hotel rooms (Arnarson, 2017; Arnarson, 2018) increasing the number of rooms by roughly 14%. This addition of rooms is assumed to lead to subsequent revenue growth in that year. Growth in the following two years is then based on the firm being able to achieve higher occupancy rates and will decline down to the terminal growth rate of 3%. Terminal growth rate is assumed to be 3%. The rate is based on forecast made for Keflavik Airport operator, Isavia (Aton, 2016). The forecast assumes that growth rate of number of passengers will decrease until 2026, when it reaches the terminal growth of 3%. Assumptions about higher occupancy rates are based on the assessment that if even conservative forecasts of growth in number of tourists materialize, number of new hotel rooms that are being built will not be sufficient to satisfy the demand for hotel rooms (Íslandsbanki, 2018)

Table 1. Estimated revenue growth.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>11,217,392</td>
<td>12,002,609</td>
<td>12,602,740</td>
<td>14,367,123</td>
<td>15,516,493</td>
<td>16,137,153</td>
<td>16,621,268</td>
</tr>
<tr>
<td>Growth</td>
<td>-</td>
<td>7%</td>
<td>5%</td>
<td>14%</td>
<td>8%</td>
<td>4%</td>
<td>3%</td>
</tr>
</tbody>
</table>
5.1.2. EBITDA and EBIT

Earnings before interest & tax (EBIT) was chosen to derive the FCFF of the firm according to the formula presented earlier. EBIT was derived by finding earnings before interest, tax, depreciation and amortization (EBITDA) and then add D&A to derive EBIT. As table 2 shows, EBITDA as a percentage of revenue (EBITDA ratio) has been relatively stable for the last six years with an average of 27.86%. This ratio is therefore chosen for the forecast period since as it is assumed that it reflects the fundamentals of the firm, based on its past historical data.

Table 2. EBITDA 2012-2017.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>3,918,100</td>
<td>4,537,356</td>
<td>5,193,029</td>
<td>6,895,126</td>
<td>9,789,723</td>
<td>11,217,392</td>
</tr>
<tr>
<td>EBITDA</td>
<td>914,973</td>
<td>1,229,282</td>
<td>1,556,313</td>
<td>2,083,614</td>
<td>2,953,552</td>
<td>2,954,865</td>
</tr>
<tr>
<td>EBITDA ratio</td>
<td>23.35%</td>
<td>27.09%</td>
<td>29.97%</td>
<td>30.22%</td>
<td>30.17%</td>
<td>26.34%</td>
</tr>
</tbody>
</table>

**Average 27.86%**

5.1.3. Depreciation and Amortization

Íslandshótel does not distinguish between depreciation and amortization (D&A) in their financial statements. From here on depreciation will be used for D&A. Table 3 shows depreciation as a percentage of sales (D&A ratio). Depreciation is adjusted in 2016 and 2017 because in of downward revaluation of fixed assets that go with D&A in the financial statement. As one can see, the D&A ratio has been growing for the last three years. The reason behind this growth is due to upwards revaluation of fixed assets that with equity in the financial statements. Fixed assets were revaluated upwards by 4,934 million ISK in 2015, 404 million in 2016 and by 2,447 million in 2017. Because of this revaluation, the Adjusted D&A ratio for 2017 which is 9.12%, was chosen for the forecasting period since the historical one does not reflect the depreciation ratio from now on. For the purpose of this valuation we make the assumption that there will be no upward or downward revaluation of fixed assets.
Table 3. Depreciation and adjusted depreciation ratio 2012-2017.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>3,918,100</td>
<td>4,537,356</td>
<td>5,193,029</td>
<td>6,895,126</td>
<td>9,789,723</td>
<td>11,217,392</td>
</tr>
<tr>
<td>D&amp;A</td>
<td>243,055</td>
<td>304,010</td>
<td>380,972</td>
<td>501,298</td>
<td>881,152</td>
<td>1,510,271</td>
</tr>
<tr>
<td>Adjustment for revaluation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>100,000</td>
<td>487,000</td>
</tr>
<tr>
<td>Adjusted D&amp;A</td>
<td>243,055</td>
<td>304,010</td>
<td>380,972</td>
<td>501,298</td>
<td>781,152</td>
<td>1,023,271</td>
</tr>
<tr>
<td>Adjusted D&amp;A ratio</td>
<td>6.20%</td>
<td>6.70%</td>
<td>7.34%</td>
<td>7.27%</td>
<td>7.98%</td>
<td>9.12%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>7.44%</strong></td>
</tr>
</tbody>
</table>

5.1.4. Net working capital

As table 4 shows, both net working capital (NWC) and changes in net working capital have been volatile for the last three years. The reason why three years is used with NWC is that in the 2017 financial statement, changes were made to how current assets and liabilities are classified. Therefore, these three-year are used. Damodaran’s (2012) definition of net working capital (non-cash working capital) is used, where cash and other marketable assets are subtracted from current assets. Interest bearing short term debt and long-term debt that is due in next year is also subtracted from current liabilities. This debt is subtracted because it is considered when WACC is computed and therefore it is unsound, to count it twice. The firm has both decreased and increased its NWC and the average NWC as a percentage of revenue is on average 8.98%. It is also worth noting that the firm has a negative NWC. However, according to Rushmore (2003) almost every hotel has negative NWC due to the fact that in most cases, hotels receive income upfront and therefore current liabilities will be higher than current assets.

Because of how volatile NWC has been we chose to adjust it for NWC as a percentage of revenue used in the forecasting period. This ratio was chosen since it is a general procedure according to Damodaran (2012). For the purpose of adjustment, average NWC as a percentage of revenue is used to forecast changes in NWC for the forecasting period.

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non cash current assets</td>
<td>636,651</td>
<td>881,874</td>
<td>1,086,995</td>
</tr>
<tr>
<td>Non cash current liabilities</td>
<td>1,137,872</td>
<td>1,976,642</td>
<td>2,038,580</td>
</tr>
<tr>
<td>Net working capital (NWC)</td>
<td>-501,221</td>
<td>-1,094,768</td>
<td>-951,585</td>
</tr>
<tr>
<td>Revenue</td>
<td>6,895,126</td>
<td>9,789,723</td>
<td>11,217,392</td>
</tr>
<tr>
<td>NWC of revenue</td>
<td>-7.27%</td>
<td>-11.18%</td>
<td>-8.48%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>-8.98%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.1.5. Capital expenditures

As with NWC, investments in fixed capital or capital expenditures (CAPEX) have been volatile for the past years, as figure 6 shows. The average CAPEX as percentage of revenue has been 38.73% on average for the years of 2012-2016 which is very high. CAPEX as ratio of revenue is used because according to Damodaran (2012) it is “usually computed as a percentage of a base input”. The reason for the high CAPEX lies mostly in investments in new hotels which has driven the firm’s revenue growth in recent years. Íslandshótel is, according to the firm’s chairman, slowing down on new hotels so average CAPEX for last years is not of much use. For the CAPEX estimation, Damodaran’s (2012) definition of net CAPEX is used which is CAPEX minus depreciation. For the first four years CAPEX is assumed to follow the percentage of forecasted growth to revenue to accompany for the expected addition of rooms in 2020. In the fifth year, the net CAPEX ratio is assumed to decline to an industry average of 1.43% of revenue (Damodaran, 2018).


<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition of operating assets</td>
<td>-319,830</td>
<td>-1,569,142</td>
<td>-1,325,686</td>
<td>-6,030,664</td>
<td>-4,199,561</td>
<td>-4,024,323</td>
</tr>
<tr>
<td>Sale of operating assets</td>
<td>2,000</td>
<td>-</td>
<td>96,158</td>
<td>968</td>
<td>-</td>
<td>149,648</td>
</tr>
<tr>
<td>Acquisition of intangible assets</td>
<td>-12,550</td>
<td>-1,500</td>
<td>-</td>
<td>-53,021</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sale of intangible assets</td>
<td>-</td>
<td>-</td>
<td>1,500</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>CAPEX</strong></td>
<td>-330,380</td>
<td>-1,570,642</td>
<td>-1,228,028</td>
<td>-6,082,717</td>
<td>-4,199,561</td>
<td>-3,874,675</td>
</tr>
<tr>
<td>Revenue</td>
<td>3,918,100</td>
<td>4,537,356</td>
<td>5,193,029</td>
<td>6,895,126</td>
<td>9,789,723</td>
<td>11,217,392</td>
</tr>
<tr>
<td>CAPEX % of revenue</td>
<td>8.43%</td>
<td>34.62%</td>
<td>23.65%</td>
<td>88.22%</td>
<td>42.90%</td>
<td>34.54%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>38.73%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.1.6. Weighted average cost of capital

To discount the FCFF, the WACC was derived using eq. (9). The WACC is the discount rate that reflects the risks that are linked to the cash flow. In table 6 final result of the WACC estimation is shown. The WACC used in the free cash flow valuation is 9.42% How each component is calculated will then be explained in following sections. It is worth noting that although the WACC assumes market values to be used for debt to equity ratio’s we chose to use the book values from 2017 as an alternative, since the there is no data available or reliable on the market value of debt or equity. Industry averages would also not be of much use since capital structure differs between similar firms in different nations (Mcclure, Clayton & Hofler, 1999). In 2017 equity was 15,182 million and liabilities were 22,593 million ISK. Weight of debt is therefore 59.81% and weight of equity 40.19%. Corporate tax in Iceland is 20%.

Table 6. Weighted average cost of capital.

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of debt</td>
<td>59.81%</td>
</tr>
<tr>
<td>Cost of Debt</td>
<td>6.45%</td>
</tr>
<tr>
<td>(1-Tax rate)</td>
<td>80.00%</td>
</tr>
<tr>
<td>Weight of equity</td>
<td>40.19%</td>
</tr>
<tr>
<td>Required return on equity</td>
<td>15.75%</td>
</tr>
<tr>
<td><strong>WACC</strong></td>
<td><strong>9.42%</strong></td>
</tr>
</tbody>
</table>

5.1.7. Required return on equity

The CAPM is used to estimate the required return on equity using eq. (10). For the risk-free rate. The rate on a ten-year government bond was used, which is 5.43% ("Keldan.is", 2018). Since Íslandshótel is a private firm, its beta cannot be estimated on its market data. To calculate the beta, Damodaran data set was uses to find unlevered average beta of hotels in the Europe which was 0.67 (Damodaran, 2018c). Since beta represents how risks that affect the overall market are amplified or dampened in a given stock or investment (Berk et al.,2015) the beta of European hotels should better reflect the beta of the firm since Íslandshótel is a part of the European hotel market. The unlevered beta was then levered by using eq. (14) with Íslandshótel tax rate and debt to equity ratio. The unlevered beta was computed as 1.09. Book values of debt and equity were used for the same reasons as with the WACC. It is worth noting that $\frac{D}{E}$ in eq.
(14) becomes \( \frac{D}{D+E} \) when book ratio of debt is used (Damodaran, n.d.). For expected return on the market portfolio, GAMMA equity index was used using 5-year geometric average which was 14.33% ("GAMMA visitöllur", 2018). These numbers gave a required return on equity of 14.24%. For the purpose of this valuation, we make the assumption that the investor is diversified and therefore use the normal version of the CAPM with industry beta.

Table 7. CAPM and beta.

<table>
<thead>
<tr>
<th>Required return on equity (CAPM)</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>10Y Icelandic. gov. rate 5.43%</td>
<td></td>
</tr>
<tr>
<td>Beta 0.99</td>
<td></td>
</tr>
<tr>
<td>Rm 14.33%</td>
<td></td>
</tr>
<tr>
<td><strong>Re 14.24%</strong></td>
<td></td>
</tr>
</tbody>
</table>

| Islandshótel levered beta 0.99 |

5.1.8. Cost of debt

Although estimation of private firms cost of debt can be difficult. Estimation of cost of debt was done using Íslandshótel recent debt issue in June of 2017 when the firm issued bonds of 2,860 million ISK. The bonds are index-linked and carry 3.95% interest rate ("Útgáfulýsing", 2017). To derive the nominal cost of debt we add an inflation premium of 2.5% which is the inflation target of The Central Bank of Iceland ("Verðbólgumarkmið", 2018). This gives a cost of debt of 6.45%

5.2. Relative valuation assumptions

In table 7, the multiples of the ten European hotels operators are shown. The forward EV/EBITDA is based on the enterprise value of each firm and the EBITDA on a 12-month guidance from the hotel firm’s directors. EV/EBITDA for the last fiscal year is also included to show comparison between the forward and the current multiples.
Table 8. EV/EBITDA multiples

<table>
<thead>
<tr>
<th>Company</th>
<th>Forward EV/EBITDA</th>
<th>Current EV/EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scandic Hotels</td>
<td>8.16</td>
<td>9.44</td>
</tr>
<tr>
<td>Accor Hotels</td>
<td>20.37</td>
<td>25.17</td>
</tr>
<tr>
<td>Dalata Hotel Group</td>
<td>12.25</td>
<td>13.94</td>
</tr>
<tr>
<td>InterContinental Hotels Group</td>
<td>14.90</td>
<td>16.16</td>
</tr>
<tr>
<td>Rezidor Hotel Group</td>
<td>4.36</td>
<td>5.42</td>
</tr>
<tr>
<td>Millennium &amp; Copthorne Hotels</td>
<td>12.15</td>
<td>12.82</td>
</tr>
<tr>
<td>Net Holding AS</td>
<td>6.31</td>
<td>7.94</td>
</tr>
<tr>
<td>Orbis Hotel Group</td>
<td>10.20</td>
<td>10.38</td>
</tr>
<tr>
<td>NH Hotel Group</td>
<td>10.72</td>
<td>12.35</td>
</tr>
<tr>
<td>Compagnie des Alpes</td>
<td>5.19</td>
<td>5.14</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>10.46</strong></td>
<td><strong>11.88</strong></td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td><strong>4.36</strong></td>
<td><strong>5.14</strong></td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td><strong>20.37</strong></td>
<td><strong>25.17</strong></td>
</tr>
</tbody>
</table>
6. Results and discussion

6.1. Free cash flow valuation

According to the discounted cash flow, Íslandshótel’s firm value is 30,572 million ISK. Equation (4) is then used to derive value of equity as table 9 shows. 2017 book value of interest bearing debt is used since it is the best estimation of the firm’s debt, although market value of debt is suggested. This gives an equity value of 14,527 million ISK.

Table 9. DCF model.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>11,217,392</td>
<td>12,002,609</td>
<td>12,602,740</td>
<td>14,367,123</td>
<td>15,516,493</td>
<td>16,137,153</td>
<td></td>
</tr>
<tr>
<td>growth</td>
<td>-</td>
<td>7.00%</td>
<td>5.00%</td>
<td>14.00%</td>
<td>8.00%</td>
<td>4.00%</td>
<td></td>
</tr>
<tr>
<td>EBITDA ratio</td>
<td>-</td>
<td>27.86%</td>
<td>27.86%</td>
<td>27.86%</td>
<td>27.86%</td>
<td>27.86%</td>
<td></td>
</tr>
<tr>
<td>EBITDA</td>
<td>2,954,865</td>
<td>3,343,619</td>
<td>3,510,800</td>
<td>4,002,312</td>
<td>4,322,497</td>
<td>4,495,397</td>
<td></td>
</tr>
<tr>
<td>D&amp;A (-)</td>
<td>1,510,271</td>
<td>1,094,900</td>
<td>1,149,645</td>
<td>1,310,595</td>
<td>1,415,443</td>
<td>1,472,061</td>
<td></td>
</tr>
<tr>
<td>EBIT</td>
<td>1,444,594</td>
<td>2,248,719</td>
<td>2,361,155</td>
<td>2,691,717</td>
<td>2,907,054</td>
<td>3,023,336</td>
<td></td>
</tr>
<tr>
<td>EBIT*(1-Tax rate)</td>
<td>1,155,675</td>
<td>1,798,975</td>
<td>1,888,924</td>
<td>2,153,373</td>
<td>2,325,643</td>
<td>2,418,669</td>
<td></td>
</tr>
<tr>
<td>D&amp;A (+)</td>
<td>1,510,271</td>
<td>1,094,900</td>
<td>1,149,645</td>
<td>1,310,595</td>
<td>1,415,443</td>
<td>1,472,061</td>
<td></td>
</tr>
<tr>
<td>FCInv (-)</td>
<td>-</td>
<td>-1,935,083</td>
<td>-1,779,782</td>
<td>-3,321,993</td>
<td>-2,656,762</td>
<td>-1,702,822</td>
<td></td>
</tr>
<tr>
<td>WCInv (-)</td>
<td>-</td>
<td>126,249</td>
<td>53,892</td>
<td>158,442</td>
<td>103,213</td>
<td>55,735</td>
<td></td>
</tr>
<tr>
<td>FCFF</td>
<td>1,085,042</td>
<td>1,312,679</td>
<td>300,418</td>
<td>1,187,537</td>
<td>2,243,643</td>
<td></td>
<td>39,528,923</td>
</tr>
<tr>
<td>Present value factor</td>
<td>0.92</td>
<td>0.84</td>
<td>0.78</td>
<td>0.71</td>
<td>0.66</td>
<td>0.66</td>
<td></td>
</tr>
<tr>
<td>PV (FCFF)</td>
<td>997,181</td>
<td>1,108,697</td>
<td>233,189</td>
<td>847,142</td>
<td>1,470,924</td>
<td>25,915,008</td>
<td></td>
</tr>
</tbody>
</table>
6.1.1. Sensitivity analysis on FCFF inputs

Estimates of value using the FCFF involves varying degrees of uncertainty (Pinto et al., 2015) since all the inputs are based on our assumptions. We use sensitivity analysis to shed light on how changes in the key inputs in the FCFF valuation can change the value of equity. For the sensitivity analysis, we take a look at the three inputs that are constant throughout the forecasting period which are WACC, terminal growth and EBITDA ratio. The bolded numbers in following tables represent the inputs used in the DCF model and the value of equity that was derived.

As table 11 shows, modest changes in the inputs of the model have a considerable impact on the value of equity. 1% change in terminal growth, holding the WACC and other factors
constant, causes the value of equity to either increase or decrease by roughly 4 billion ISK. At the same time, while holding terminal growth and other factors constant, 1% decrease in the WACC causes the value of equity to increase by roughly 7 billion ISK while 1% increase in the WACC leads to approximately 5 billion decrease in the value of Íslandshótel equity.

The value of equity is also quite sensitive to changes in the EBITDA ratio as table 12 shows. Holding WACC and other factors constant, 1% shift in the ratio leads to corresponding increase or decrease in the value of equity by roughly 2 billion ISK.

Table 12. Sensitivity analysis: WACC and EBITDA ratio.

<table>
<thead>
<tr>
<th>EBITDA ratio</th>
<th>Weighted average cost of capital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.81%</td>
</tr>
<tr>
<td>25.86%</td>
<td>16,838,896</td>
</tr>
<tr>
<td>26.86%</td>
<td>19,184,543</td>
</tr>
<tr>
<td><strong>27.86%</strong></td>
<td>21,530,190</td>
</tr>
<tr>
<td>28.86%</td>
<td>23,875,838</td>
</tr>
<tr>
<td>29.86%</td>
<td>26,221,485</td>
</tr>
</tbody>
</table>

6.1.2. Analysis of premium and discounts

The value of equity in the DCF was estimated without regards to premiums and discounts due to control and liquidity of private firms. Although the computation of these premiums and discounts are not within the scope of this thesis, it is important to look at how different motives for the valuation change the value of equity. According to Damodaran (2012), the value estimates are different for investors with different motives. If an investor or another firm is planning on acquiring a majority stake in the company, it will have a control premium in their valuation but will not face discounts due to illiquidity. Therefore, liquidity discount is not included with control premium. If a minority stake being considered, discounts due to lack of control and liquidity are appropriate (Pinto et al., 2015). It is also worth noting that discounts for a minority stake are multiplicative but not additive.
Table 13. Analysis of premium and discounts.

<table>
<thead>
<tr>
<th>Control premium/discount</th>
<th>Liquidity discount</th>
<th>0%</th>
<th>-5%</th>
<th>-10%</th>
<th>-15%</th>
<th>-20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.0%</td>
<td>19,295,295</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10%</td>
<td>16,778,517</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5%</td>
<td>15,253,198</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>0%</td>
<td><strong>14,526,855</strong></td>
<td>13,800,512</td>
<td>12,420,461</td>
<td>10,557,392</td>
<td>8,445,913</td>
<td></td>
</tr>
<tr>
<td>-5%</td>
<td>13,800,512</td>
<td>13,110,486</td>
<td>12,420,461</td>
<td>11,730,435</td>
<td>11,040,410</td>
<td></td>
</tr>
<tr>
<td>-10%</td>
<td>12,420,461</td>
<td>11,766,752</td>
<td>11,113,044</td>
<td>10,459,335</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-15%</td>
<td>10,557,392</td>
<td>11,113,044</td>
<td>10,495,653</td>
<td>9,878,261</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-20%</td>
<td>8,445,913</td>
<td>11,040,410</td>
<td>9,878,261</td>
<td>9,297,187</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.2. Relative valuation

For the relative valuation, we use the average EV/EBITDA of the peer companies which is 10.46 and multiply that number by forecasted EBITDA of 3,343,619 from the DCF valuation to find the enterprise value of Íslandshótel. Fair market value of equity is then derived by using eq. (4). This gives an equity value of 18,932,521. As a comparison, we also use the current EV/EBITDA. We derive the fair market value of equity using the same process as with the forward EV/EBITDA. This gives an equity value of 19,049,861 which shows there is almost no difference between the values derived by the forward and current multiples.

Table 14. Value of equity using relative valuation.

<table>
<thead>
<tr>
<th>Relative valuation</th>
<th>Forward EV/EBITDA</th>
<th>Current EV/EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise value (firm value)</td>
<td>34,977,806</td>
<td>35,095,146</td>
</tr>
<tr>
<td>Cash &amp; cash equivalents (+)</td>
<td>812,625</td>
<td>812,625</td>
</tr>
<tr>
<td>Net interest bearing debt (-)</td>
<td>17,261,106</td>
<td>17,261,106</td>
</tr>
<tr>
<td>Holdings in other firms (+)</td>
<td>403,196</td>
<td>403,196</td>
</tr>
<tr>
<td><strong>Equity value</strong></td>
<td><strong>18,932,521</strong></td>
<td><strong>19,049,861</strong></td>
</tr>
</tbody>
</table>
7. Discussion and conclusions

In this thesis, an overview of the main techniques that are used to derive the value of a private firm was presented. The techniques used to value private firms are not that much different from the ones that are used to value public firms. There are, however, two main differences. There is not as much information available about private firms as there is with public firms. This makes the estimation of factors ranging from cash flow estimation to computation of discount rate more difficult and for the most part less precise, especially when the company is valued from outside looking in, using only publicly available data which was the case in this thesis. The other difference stems from the fact that different motives for the valuation have an effect on the computed value of equity. Liquidity discount and control premium and discount does, therefore, have to be applied depending on the motive of valuator. However, in this thesis, the value of Íslandshótel without regards to those discounts and premiums was being considered.

Free cash flow to firm was used for the DCF valuation to derive the intrinsic value of Íslandshótel while relative valuation using EV/EBITDA was used to obtain the fair market value of the firm. The results show that there is a considerable difference in value of equity derived from the DCF valuation and the relative valuation. Using the DCF, the value of equity is computed as 14,526 million ISK while the relative valuation gives value of equity as 18,932 million ISK. This difference can be explained by both looking at the fact that the DCF is sensitive to small changes in input factors and by the assumption that the public European hotel companies in the peer group are simply overvalued in the market. It is also worth noting that at the time of this valuation, the outlook for the tourism and hotel industry in Iceland has gotten slightly worse than it has been in previous years which resulted in a conservative forecast of growth of revenue in the forecasting period which could also explain the difference between the methods.

The objective of this thesis was to shed light on the value of Íslandshótel and to explore whether private valuation techniques could be used to value a company in the Icelandic hotel market. As our results show, the consisting methods can certainly be used although some issues need to be concerned. As the sensitivity analysis shows, there is no right or wrong intrinsic value of the firm. Instead, the intrinsic value depends on the assumptions made by the valuator. If the assumptions used in this thesis turn out to be right then the intrinsic value of Íslandshótel is 14,526 million ISK.
As mentioned in the introduction, changes are happening in the Icelandic hotel market. On May 18, 2018 the Icelandair Group announced that it is planning to sell its entire hotel operations. With Icelandair Hotels being the largest hotel group in Iceland in 2016 in terms of revenue (Hafiðason, 2018) the techniques used in this thesis should be applicable to value the firm as long as assumptions that are company specific are changed. Private firm valuation is a complicated task as this thesis shows. What makes the task challenging for valuing firms in the tourism industry in Iceland is that the external factors such as exchange rate have a significant effect on the EBITDA ratio for a firm that has a majority of its revenue in foreign currency. Weaker ISK leads to revenue being higher while wage cost is the same and vice versa (Íslandsbanki, 2018). As the sensitivity analysis shows, changes in EBITDA ratio have a sizable effect on the outcome of the DCF valuation.

Although DCF valuation is technically sound, there are drawbacks to it. The model is sensitive to changes in the input factors such as WACC and terminal growth rate. The DCF includes forecasting the future which can be difficult (Lerner, Hardymon & Leamon, 2009). The problem that arises with the valuation of private firms is mostly concerned with the measurement of risk since most risk parameters are estimated using historical prices (Damodaran, 2012). In this thesis, the riskiness of European hotel firms was used to estimate the risk concerning Íslandshótel for the required return on equity. The concern, however, is that since no two firms are entirely alike, industry averages might not perfectly reflect the conditions of the firm being valued (Lerner et al., 2009). There are also drawbacks to the relative valuation. These drawbacks relate to how comparable firms are in terms risk and growth assumptions. Another limitation of the relative valuation using peer companies in the same industry is that it does not “determine whether an entire industry is overvalued” (Berk et al., 2015). But even though these methods have drawbacks to them, there is a need for a framework on how to value assets. At least if an investor does not want to pay more for an asset than what it is worth.
8. References


Greiningardeild Arion Banka. (2017). *Komíð til að vera?*. Reykjavik: Arion Banki. Retrieved from https://www.arionbanki.is/library/skrar/Netpostur/Greiningardeild/Tenglar/Fer%C3%B0amannalandi%C3%B0%20%C3%8Dsland%202017.pdf?_cldee=Z3JlaW5pbmdhcRlaWxkQGFyaW9uYmFua2kuXM%3d&recipientid=lead-850ed5a54e05e61180e9005056a417c7-b9f5d7002cfd42b3aced25567c2cd95e5&esid=e2d71d2e-c897-e711-811b-005056a47ca3&urlid=2


Icelandair Group hefur söluferli á hótelrekstri og tengdum eignum.
d=840945&lang=is

Icelandic Tourist Board. (2017). Tourism in Iceland in Figures. Icelandic Tourist
Board. Retrieved from
https://www.ferdamalastofa.is/static/files/ferdamalastofa/Frettamyndir/2017/ju

Retrieved 20 May 2018, from
https://www.mbl.is/vidskipti/frettir/2018/05/19/hafa_fundid_fyrir_ahuga_a_ho
telum/


Retrieved from https://www.isavia.is/media/1/isavia-
farthegaspa_2018_hq_x3.pdf

from
https://www.islandsbanki.is/library/Skrar/Fyrirtaeki/I%CC%81slensk%20fer%
C3%B0a%C3%BEjo%CC%81nusta-apri%CC%81l-2018_vef.pdf

https://umraedan.landsbankinn.is/umraedan/samfelagid/ferdathjonusta-
2017/islandshotel/


https://www.mbl.is/vidskipti/frettir/2018/04/05/ovissa_med_ferdathjonustu_ahættuthattur/


https://search.proquest.com/docview/212070448?accountid=28419


http://www.visir.is/g/2017170818944/erlendir-fjarfestar-kaupa-75-prosent-i-keahotelum