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# **MODEL RESEARCH ASSIGNMENT**

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Students pick one Australian company they believe to be undervalued and one they believe overvalued by Week 3. By week 10 they value the company with any valuation technique they see fit and submit their valuation report.

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## Introduction

My initial opinion was that JBH was overvalued, but as this report will show, I find it to be undervalued. HVN is also overvalued, which corresponds to my initial expectations.

### I. Valuation Method

For the purpose of this report, the discounted cash flow model is used as it is based upon the firm's fundamentals rather than market perception, and thus should provide an estimated intrinsic value of the firms. It should also be noted that in other methods of valuation, such as relative valuation, are affected by firm's fundamentals as well. All companies, even those in the same industries, contain unique variables - such as growth, risk and cash flow patterns - that determine the multiple.

Furthermore, both HVN and JBH's characteristics are suitable for DCF as the cashflows for both firms are positive for the current period, and can be estimated with some reliability for future periods, and the risk of the firms are relatively stable.

### II. Determining Cost of Equity

For purpose of this report, the cost of equity is computed using the CAPM method:

$$\text{Cost of equity} = \text{Risk free Rate} + \text{Equity beta} \times (\text{Expected Return on Market Index} - \text{Risk free Rate})$$

#### (1) The Risk free rate

The risk-free interest rate is the interest rate that is assumed can be obtained by investing in asset with no default or reinvestment risk. As a truly risk-free asset exists only in theory, in practice, most professionals use the government bond of the currency in question<sup>1</sup> as a proxy for the risk free rate. As we are evaluating two Australian companies whose cash flows are measured in AUD, we will use the Australian Treasury bond rate for consistency reason.

For company valuation purposes, where the time horizon is generally infinite (as firms are assumed to be a 'going concern'), a long term risk free rate is always preferable to a short term rate. In addition, a nominal risk free rate will be used as Australia has a stable and low expected inflation rate.

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<sup>1</sup> Aswath Damodaran "Investment Valuation-Tools and Techniques for Determining the Value of Any Asset" 2<sup>nd</sup> Edition John Wiley & Sons, Inc 2002, Page 154-156

For these reasons, I have chosen the **current nominal Australian government 10 years Treasury bond yield** as the proxy for the risk free rate: **5.41% p.a.**<sup>2</sup> for the purpose of this valuation report.

### (2) Determining the Equity Risk Premium

For the purpose of this valuation report, we will use the historical risk premium. The reason for this is that the alternative method- implied equity risk premium, though market driven and forward looking, is bounded by the availability and reliability of the inputs to the valuation model, e.g. assumption about dividends and the constant" growth rate. In addition, the method is based upon the unrealistic assumption that the market is correctly priced.<sup>3</sup> Thus the advantages of using the implied equity risk premium are outweighed by the disadvantages of such method. On the other hand, users of risk and return models have developed consensus that historical premium is the best estimate of the risk premium looking forward.<sup>4</sup>

However, it should be noted that the historical risk premium is not without uncertainty as many analysts' opinions differ as to what the actual premium is in practice. Nevertheless most analysts agree that the equity risk premium is around 5%-7%<sup>5</sup> for the Australian's share market.

For the purpose of this report, I have used **5.8 % p.a.** as the market risk premium, which is calculated by looking at the return differentials between Australian equities and bonds from 1900-2008.<sup>6</sup>

### (3) Equity Beta

Even though betas for individual company are available from estimation service such as FinAnalysis<sup>7</sup>, all these services begin with regression beta and has very high standard error and also tends to reflect businesses' past financial structure rather than the present. For these reasons, betas determined by business fundamentals are preferred.

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<sup>2</sup> Obtained from RBA [http://www.rba.gov.au/Statistics/AlphaListing/alpha\\_listing\\_c.html](http://www.rba.gov.au/Statistics/AlphaListing/alpha_listing_c.html)  
Commonwealth Government Securities - Capital Market Yields – Government Bonds - [Daily](#) and [Monthly](#) - F2 for month ended Aug 2009 accessed on 20/09/2009

<sup>3</sup> [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/AppldCF/derivn/ch4deriv.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/AppldCF/derivn/ch4deriv.html) -chapter 4 derivatives, accessed on 20/09/2009

<sup>4</sup> Aswath Damodaran "Investment Valuation-Tools and Techniques for Determining the Value of Any Asset" 2<sup>nd</sup> Edition John Wiley & Sons, Inc 2002, 160

<sup>5</sup> Brailsford, TJ JC Handley and K Maheswaran, 2008, "Re-examination of the Historical Equity Risk Premium in Australia", Accounting and Finance, 48, 73-97

<sup>6</sup> <http://www.southernfinancial.com.au/Uploads/Images/are-shares-offering-enough-of-a-risk-premium-over-bonds20-08-2009.pdf> Source: Global Financial Database, Thomason Financial, AMP Capital

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<http://www.aspectfinancial.com.au.viviana.library.unsw.edu.au/af/company/mainview?ASXCode=HV N&xm-licensee=finanalysis>

**Bottom Up Beta**

Both HVN and JBH operate within the Retail GICS Industry Group<sup>8</sup>, with an industry average beta of 1.09.<sup>9</sup> The average debt to equity ratio for the industry is 34.5% .

Using the average tax rate of 44.55, the estimated unlevered industry beta is

$$\begin{aligned} \text{Unlevered industry beta} &= \text{Average Industry beta} / [1+(1-\text{tax rate})(\text{average debt/equity})] \\ &= 1.09 / (1+ (1-0.445 )(0.345) )^{10} \\ &= 0.91(2dp) \end{aligned}$$

The beta for HVN is obtained by using the firm’s tax rate of 34% <sup>11</sup> and its market debt to equity ratio of 28.43%.<sup>12</sup>

$$\text{Levered beta (@28.43\%D/E)} = 0.91 \times [1+(1-0.34)(0.2843)] = \mathbf{1.08} \text{ (2dp)}$$

Similarly, the levered beta for JBH can be worked out.

$$\text{Levered beta (@38.98\%D/E \& 30.30\% tax rate)} = \mathbf{1.16} \text{ (2dp)}$$

\*\*The levered beta is based on the implicit assumption that all retailing companies in the group have similar operating leverage.<sup>13</sup>

**(4) Adjustment for Country Risk**

As HVN operates outside Australia, it is necessary to add on an extra component to the cost of equity—a country risk premium.

Country	Country risk premium <sup>14</sup>	Country risk exposure (λ)
New Zealand	0%	N/A
Asia (Singapore)	0%	N/A
Slovenia	1.5%	4.70% <sup>15</sup> *
Republic of Ireland	0%	N/A

\* 4.7% is % of HVN’s total revenue that it gained from operating in Slovenia (for year ended June 2009). This is used as the basis for estimating lambda in that market. While the % of revenue can be used as a lambda, the more precise estimate could scale this to the % of

<sup>8</sup> For the purpose of this report, it is assumed that both HVN and JBH operate within the Retail GICS only. This is somewhat unrealistic assumption to make but is done due to the lack of industry information available.

<sup>9</sup> Source: FinAnalysis

<sup>10</sup> See Appendix 1 for excel spreadsheet

<sup>11</sup> See Per Share Stats for year ended 2009, FinsAnaylsis

<sup>12</sup> Obtained from ratio analysis for Year ended June 2009, FinsAnalysis

<sup>13</sup> I could adjust the unlevered beta for the average fixed cost/variable cost ratio for the business and then relever back at the operating leverage for the particular company. However, I wasn’t able to find any data providers can supply info re fixed and variable cost of different firms in the industry.

<sup>14</sup> Figures derived from <http://pages.stern.nyu.edu/~adamodar/> Updated Data, Risk premium for other countries

<sup>15</sup> Figure derived from FinAnalysis, Interim Financials Segment Performance for 12/08

revenues that average company in that market gets in the country. However, this information is not available to me.

The **cost of equity** for **HVN** is:

$$5.41 + 1.08 \times 5.8 + 1.5 \times 0.047 = 11.7445\%$$

The **cost of equity** for **JBH** is:

$$5.41 + 1.16 \times 5.8 = 12.138\%$$

### III. Determining the Cost of Debt

**After tax cost of debt = (Risk free rate + Default risk of the company)(1-tax rate)**

#### (1) Estimating Default Risk/Spread

As neither HVN nor JBH have long term bonds outstanding that are widely traded, synthetic rating estimate is used in order to assess the default risk of the firms.

	Interest Coverage Ratio <sup>16</sup>	Rating <sup>17</sup>	Spread
<b>HVN</b>	$381.7/37.71^{18} = 10.12$	AAA	0.75%
<b>JBH</b>	$142/8.04^{19} = 17.66$	AAA	0.75%

#### (2) Estimating a Tax Rate

Since interest expense saves taxes at the margin, the right tax rate to use is the marginal tax rate, which is **30%**.

The **after tax cost of debt** for HVN is:

$$(5.41 + 0.75)(1 - 0.3) = 4.312\%$$

The **after tax cost of debt** for JBH is:

$$(5.41 + 0.75)(1 - 0.3) = 4.312\%$$

### IV. Calculating WACC

**WACC = (Equity/Equity + Debt)(Cost of equity) + (Debt/Equity + Debt)(After Tax Cost of Debt)**

<sup>16</sup> Calculated as EBIT/interest expense

<sup>17</sup> Based on table 8.2 Interest Coverage Ratios and Rating for High Market Cap Firms in Aswath Damodaran "Investment Valuation-Tools and Techniques for Determining the Value of Any Asset" 2<sup>nd</sup> Edition John Wiley & Sons, Inc 2002, 209. This is probably a bit unrealistic as table was developed in early 2001 and targets S&P rating classes. No similar data is available on Australian firms.

<sup>18</sup> Figures obtained from FinAnalysis, Annual P&L statement for Year ended June 09

<sup>19</sup> Figure obtained from FinAnalysis, Annual P&L statement for Year ended June 09

**(1) What is Debt**

As not all liabilities on a firm's balance sheet are interest bearing, applying after tax cost of debt to these items can provide a misleading view of the true cost of capital for a firm. Consequently, only interest bearing debts are considered.

Book Value of Interest Bearing Debts for HVN = 585,432,000<sup>20</sup>

Book Value of Interest Bearing Debt for JBH= 89,358,000<sup>21</sup>

**(2) Book Value versus Market Value Equity & Debt Ratio**

Market value is preferred because true value of firm changes over time, so market value, with its volatility, is a much better reflection of true value than book value. Furthermore, cost of capital measures the cost of issuing security-stocks and bonds, to finance project and these securities are issued at market value, not book value.

**Market value of equity = Number of shares outstanding x current stock price**

Market Value of equity for HVN is: 1.1billion x \$4.19<sup>22</sup>= \$ 4609 million

Market Value of equity for JBH is: 108.1million<sup>23</sup> x \$19.15= \$ 2070 million

Market Value of debt is harder to obtain. An estimate of market value of debt is<sup>24</sup>:

**Estimated market value of debt = interest expense ((1-1/(1+pre tax cost of debt) ^ year to maturity))/pre tax cost of debt + BV of debt/(1+pre tax cost of debt)^year to maturity**

Debt maturity in Australia is not able to be measured by weighted average of debt maturity, as the maturity date of each debt instrument is not provided in the annual report for Australian firms. Therefore, book value debt is used in order to compute WACC.

**WACC for HVN is:**

$$(4609/4609+585.432)(11.7445\%) + (585.432/4609+585.432)(4.312\%)=$$

**10.91% (2dp)**

**WACC for JBH is**

<sup>20</sup> Figure derived from Preliminary Annual Report p11. See Appendix 2 for working out.

<http://www.harveynormanholdings.com.au/companyreports/index.html#tab1>

<sup>21</sup> Figure derived from Annual Report June 09, p40 <http://www.jbhifi.com.au/corporate/reports/> See Appendix 2 for working out.

<sup>22</sup> Figures as at close of business day 23 September 2009

<http://investing.businessweek.com/research/stocks/snapshot/snapshot.asp?ric=HVN.AX>

<sup>23</sup> Figures as at close of business day 23 September 2009

<http://investing.businessweek.com/research/stocks/snapshot/snapshot.asp?ric=JBH.AX>

<sup>24</sup> Aswath Damodaran "Investment Valuation-Tools and Techniques for Determining the Value of Any Asset" 2<sup>nd</sup> Edition John Wiley & Sons, Inc 2002, p216

$$(2070/2070+89.358)(12.138\%) + (89.358/2070+89.358)(4.312\%)=\mathbf{11.81\%}$$

(2dp)

As JBH is still in its growth phase<sup>25</sup>, it is likely that its WACC is going to change when the firm reaches stability. We will assume that pre-tax cost of debt will remain at 6.16% in perpetuity and the debt ratio will remain at the current level.<sup>26</sup>

In stable growth, beta of JBH will be lowered to 1.06, the industry average, and keeping risk free rate and risk premium unchanged.

$$\text{Cost of equity}_{\text{stable growth}} = 5.41 + 1.06 \times 5.8 = 11.558\%$$

### **WACC for JBH in Stable growth:**

$$(.9586)(11.558\%)+(.0414)(4.312\%)=\mathbf{11.26\%}$$
 (2dp)

## **V. Valuation**

### **(1) Which DCF Model to use?**

DDM is not going to be used in this valuation report as both HVN and JBH don't have FCFE equal to dividends<sup>27</sup> over the period from 2004 to 2009. In fact, dividends are significantly higher or lower than FCFE across the period (less than 80% of FCFE or greater than 110% FCFE). Therefore, DDM is likely to under/overestimate the value of the stock.

The FCFE doesn't seem to be an appropriate model to evaluate the two firms neither as leverages has fluctuated from 2004 to 2009 for both firms. Furthermore estimating new debt issues and debt repayments into future are difficult as leverage is expected to change in future as well. Originally, HVN lowers the cost of its debt financing by securitizing a portion of the income-producing property portfolio<sup>28</sup> through the Commercial Mortgage Backed Securities (CMBS) Facility, which expired on 19 May 2009.<sup>29</sup> Given the structural change in the credit markets, it's fair to assume that HVN's debt-financing cost and debt structure will change in the near future. In JBH's case, as the business is still undergoing rapid expansion-it was stated in the latest annual report that the Board expect to continue to secure around 15 full size stores annually for at least another 2 year and expect to also roll out 50 smaller format stores in the future as well expansion into NZ.<sup>30</sup> Thus, it is expected that the firm's debt ratio will probably change over time.

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<sup>25</sup> See Section V if the report for more details

<sup>26</sup> This assumption is made on convenience basis than anything else- if debt ratio is changed, then cost of debt will change as well. As interest coverage ratio cannot be estimated with great accuracy, I just simply assumed the firm will maintain its current leverage ratio which is probably not very realistic (as can be seen later in Section V of the report).

<sup>27</sup> See Appendix 3

<sup>28</sup> which accounts for nearly 50% of the total asset

<sup>29</sup> Hot Stock, Greg Canavan | June 11 2008 | SMH <http://www.smh.com.au/news/money/hot-stock/2008/06/09/1212863542137.html>

<sup>30</sup> See JB Hi Fi Annual Report 2009, p3, <http://www.jbhifi.com.au/corporate/reports/>

The advantage of using the FCFF is that cash flow relating to debt is not considered explicitly since FCFF is a pre-debt cash flow, while they have to be taken into account in estimating FCFE. Thus, FCFF valuation model is used for both HVN and JBH.

### (2) How many staged FCFF model?

HVN is a mature firm in a relatively saturated Australian retail market industry. Even though the company is looking for expansion beyond Australian shore to markets such as Asia, Ireland and Slovenia, it is still uncertain whether the expansion will provide a second growth spurt for HVN given the latest annual report showed operating losses generated from overseas operations. For conservative reasons, this report will assume that HVN is in stable growth, and hence the **Gordon growth model** will be used.

JBH, on the other hand, though in the same retail market industry as HVN, has experienced phenomenal growth over the past years due to its unique management strategy which has made it one the best-positioned retailer listed on the ASX currently. JBH differentiates among its competitors for its 'everyday low price' promise. JBH announced in its annual report that it expects to open 40<sup>31</sup> JB Hi-Fi branded stores of a similar size (sales and earnings) to the current average store and further 50 stores in smaller catchment areas which will primarily be in smaller mall and strip metropolitan shopping centres and country towns across Australia and New Zealand. I believe a **3 stage model** is appropriate for valuing JBH as the even though the firm is expected to maintain its high growth rate for an initial period (4 years)<sup>32</sup>, the growth is expected to decline gradually over time as JBH gets larger the differential advantage it has over its competitors decline (transition period=4 years)<sup>33</sup> to a stable growth rate.

## VI. Earnings to Cash Flows

$\text{FCFF} = \text{EBIT} (1 - \text{tax rate}) - \text{net working capital} - \text{net capital expenditure}$ <p>Or</p> $\text{FCFF} = \text{EBIT} (1 - \text{tax rate}) * (1 - \text{reinvestment rate})$
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### (1) Updating Earnings

As the valuation is taken place in September 2009, and most recent 4 quarters figures coincidentally happen to be the annual report figures reported by the HVN and JBH respectively. Therefore, there is no need to update the figures based on trailing 12 month revenues and earnings. The figures from the latest annual reports are used unless stated otherwise.

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<sup>31</sup> The board estimates that market can sustain at least 160 JB Hi Fi Full size stores before new stores openings begin to have material impact on existing store operations.

<sup>32</sup> Based on the Board's estimates above and JB's current new store open rate of 15 stores p.a.

<sup>33</sup> As there is relative little barrier to entry to the retail industry, the transition period is short. In a competitive market, excess returns JBH generate will eventually draw in new competitors, and excess returns will disappear.

## (2) Tax Rate

The tax rate used is the marginal tax rate because we are valuating the firms into future. As new capital expenditures taper off, the difference b/w reported and tax income will narrow and firms would eventually have to pay their deferred tax, therefore, it is important that marginal tax be used, especially in the computation of the terminable value.

The marginal corporate tax rate of **30%** is used on both HVN and JBH. Even though HVN has global operations, we make the implicit assumption that income generated in other countries will have to be repatriated to Australia, at which point HVN will have to pay the marginal tax rate.

## (3) Net Capital Expenditure

### Net Capital Expenditure = Cap Expenditure<sup>34</sup> – Depreciation

As firms rarely have smooth capital expenditure streams, we will use normalized capital expenditure, obtained by averaging capital expenditure over 5 years for HVN and 4 years for JBH<sup>35</sup> to reflect the fact that firm may invest in new plant every 4/5 years to avoid under/overestimation problem.

Average capital expenditure for HVN is \$147,346,200<sup>36</sup>

Average capital expenditure for JBH is \$ 39,867,250

Depreciation figure is obtained by looking at actual depreciation in the recent year. This is because depreciation is spread out over time, so the need for normalisation is much smaller. Furthermore, tax benefits received by firm reflect actual depreciation in the most recent year, rather than an average depreciation over time.

Total Depreciation & Amortisation for HVN is \$91,039,000<sup>37</sup>

Total Depreciation & Amortisation for JBH is \$18,749,000

**Net Capital Expenditure for HVN is**

$$\$147,346,200 - \$91,039,000 = \mathbf{\$56,307,200}$$

**Net Capital Expenditure for JBH**

$$\$39,867,250 - \$18,749,000 = \mathbf{\$21,118,250}$$

**Note:** No adjustment is made to capitalize expenses such as R&D as the figures are not available from the firms' annual reports.

<sup>34</sup> Capex=cash paid for PPE, figures derived from Cash Flow Statements for year ended June 2009, FinAnalysis

<sup>35</sup> The number of years of history used depends on how frequently the firm makes large investments. This is determined by looking at the Capex patterns cross a number of years.

<sup>36</sup> See appendix 4 for working out

<sup>37</sup> Figures derived from Profit and Loss Statement for year ended June 2009, FinsAnalysis,

#### (4) Investment in Working Capital

Working capital is usually defined as the difference between Current Asset and Current Liabilities. However, for valuation purposes, we will modify the working capital by:

(a) back out cash and investments in marketable securities from current asset because cash and near cash represents a fair return for risk free investment as often they are invested by firms in Treasury bills, short term government securities or commercial papers. Unlike other current assets such as inventory and accounts receivable, cash earns a fair return and should not be included in measure of working capital.<sup>38</sup>

(b) back out all interest bearing debt as this debt is considered when computing cost of capital and it would be double counting if included.

**Non cash working capital for HVN in 2009:** \$1,351,947,000 - \$805,692,000 = **\$546,255,000**<sup>39</sup>

**Non cash working capital for JBH in 2009:** \$390,449,000 - \$323,724,000 = **\$66,725,000**

### VII. Estimating Growth

#### (1) Which Method to Use?

Firstly, HVN and JBH's historical earnings growth rates are examined.<sup>40</sup> After examining past growth rate figures, a conclusion is formed that the past growth rate is not a good indicator of growth in future for both firms.

For HVN, measures of historical growth are distorted by the presence of negative earning numbers which are not useful in predicting future growth. For JBH, as a firm that is rapidly growing, it will become harder for it to sustain its current high growth rates as JBH become larger in size.

Therefore, the growth rate is calculated by looking at the firms' fundamentals.

#### (2) Growth in Operating Income

**Growth in Operating Income = Reinvestment Rate x Return on Capital**

**Reinvestment Rate = Net Capex +  $\Delta$  Working Capital/EBIT (1-t)**

**Return on Capital = EBIT(1-t)/BVe+BVd**

Even though the reinvestment rate is often measured using the most recent financial statement for the firm, it is not necessarily the best estimate of the

<sup>38</sup> See Aswath Damodaran "Investment Valuation-Tools and Techniques for Determining the Value of Any Asset" 2<sup>nd</sup> Edition John Wiley & Sons, Inc 2002, p261

<sup>39</sup> See appendix 4 for working out

<sup>40</sup> See Appendix 6

future reinvestment rate as reinvestment rate is a volatile number and often shifts significantly from year to year.<sup>41</sup>

The reinvestment rate over the past 6 years for HVN has ranged from -47% to 120%, and 19% to 184% for JBH. The average reinvestment rates of 44.42% for HVN and 88.23% for JBH are computed by dividing the total reinvestment over the 6 years by the total EBIT(1-t) over the past 6 years. I believe that the average reinvestment rate over 2004-2009 of **44.42%** provides a better measure of the future for HVN. However, this is not the case for JBH, as it is still in its growth phase. As JBH grows and matures, the reinvestment needs (and rates) tend to decrease.

HVN and JBH's return on capital each year for the past six years are computed as well. While ROC also shifts over time, the average ROC of 7.57% for HVN and 11.30% for JBH are close to current ROC.<sup>42</sup>

Making assumption that average reinvestment rate and return on capital is a good measure of the true returns earned on existing investments, and that this return is a good proxy for returns that will be made on future investments, the **growth rate of HVN's operating income** can be calculated as:

$$44.42\% \times 7.57\% = 3.36\%^{43}$$

**Growth rate of Operating Income for JBH in the initial phase is:**

$$88.23\% \times 11.3\% = 10\%$$

The stable growth rate can not be greater than the overall growth rate of the economy. As JBH operates in primarily in Australia and New Zealand, I use the average economic growth rate over the last 3 years<sup>44</sup> -3% as proxy for the JBH's stable growth rate. Also, I assume a linear decrement in the growth rate from 10% to 3% in the transition period of 4 years.

Assume ROC is maintained as 11.3%, then the new reinvestment is  $3\%/11.3\% = 26.55\%$

During the transition period, growth and reinvestment rate are adjusted in linear increments from high growth levels to stable growth levels.

### **(3) Estimating Non Cash Working Capital Needs**

By working out noncash working capital as a percent of revenues from 2003-2009, we can see that WC/Revenue ratio for **HVN** has been fairly stable, around 23-26%.<sup>45</sup> I believe this is because the firm is in the maturity stage of the business cycle in a mature industry. Thus, I base the changes in noncash

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<sup>41</sup> see Appendix 7

<sup>42</sup> See Appendix 7

<sup>43</sup> Which is a pretty good stable growth rate as it's approximately the same rate as annual growth in economy.

<sup>44</sup> <http://www.tradingeconomics.com/Economics/GDP-Growth.aspx?Symbol=AUD> note growth in 2008 and 2009 are adversely affected by the GFC, so even the average figure provides a conservative estimate.

<sup>45</sup> See appendix 5

working capital as a percent of revenues over the period 2003-2009 as it has the advantage of smoothing out year to year shift. The **Average WC/Revenue for HVN is 25.43%**.

There is no need to consider this component for JBH as it is already taken into account in the estimated reinvestment figure.

#### (4) Estimating Capital expenditure and Depreciation

For HVN, I assume that capital expenditure is going to grow at the same rate as revenue growth and EBIT growth. Again, HVN is a mature firm, I use the Average Capex/Depreciation of 178.42%<sup>46</sup> to project the firm's depreciation into the future.

There is no need to consider this component for JBH as it is already taken into account in the estimated reinvestment figure.

### VIII. Valuation

#### (1) Harvey Norman –Stable Growth FCF Model

$$\text{Value of firm} = \text{FCFF}_{2009} (1+g)/\text{WACC-g}$$

Value of Firm= 1521.86772 million

$$\text{Value of Firm}-\text{Value of Debt}^{47}=\text{Value of equity}$$

$$V_{\text{equity}} = 1521,867,720 - 585,432,000 = \$ 936,435,720$$

$$\begin{aligned} \text{Value per Share} &= V_{\text{equity}} / \text{Shares outstanding} \\ &= 936,435,720 / 1,100,000,000 \\ &= \mathbf{\$0.85 / share} \end{aligned}$$

Current market price /share = \$4.19

Thus, HVN is overvalued according to my valuation report.

#### Sensitivity Analysis

As the Gordon growth model is extremely sensitive to the inputs for the growth rate. A sensitivity analysis of the terminal value is tabulated below, allowing changes in WACC and growth rate.

<sup>46</sup> Appendix 4

<sup>47</sup> See IV (1) of Report

VALUE SENSITIVITY		Stable Cost of Capital				
		8.91%	9.91%	10.91%	11.91%	12.91%
Stable EBIT Growth	Y					
	2.00%	1745mil	1524mil	1351mil	1217mil	1105mil
	3.00%	1970mil	1685mil	1472mil	1306mil	1175mil
	3.36%	2070mil	1754mil	<b>1522mil</b>	1344mil	1203mil
	4.00%	2286mil	1899mil	1624mil	1419mil	1260mil
	5.00%	2764mil	2201mil	1828mil	1564mil	1366mil

Even at the highest firm value calculated by using WACC as 8.91% and Stable growth rate at 5%, \$2764million, intrinsic value per share is only approximately \$2.00, still significantly lower than the market share price.

**(2) JB Hi Fi -3 Staged FCFE Model**

**Value of Firm = \$895.36mil**

**Value of Debt = \$89.358mil**

$V_{equity} = 895.36 - 89.358 = 806.002mil$

**Value per share =  $806.002 / 108.1 = \$7.46$**

Current market value per share is \$19.15.

Thus, JVN is also overvalued according to my valuation report.

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