Valuation of Harvey Norman Holdings Ltd. Share Price in 2003

(MBA9005 – Corporate Finance)

by

Kheeran Dharmawardena

Executive Summary

The objective of this report is to perform a valuation of Harvey Norman Holdings Ltd. (HVN) in 2003. In performing this valuation methods such as Dividend Discount Model, Relative valuation model and Free Cash Flow to Equity (FCFE) models were explored and FCFE model was chosen as the most appropriate model to use in the valuation. FCFE was chosen as it measures the amount of cash available to the firm for dividend payments. The financial statements from 1994 to 2002 have been applied to the FCFE model to obtain the valuation of HVN.

In performing the valuation the following assumptions are made:

- HVN will continue to grow at a rate of 3.16% in the future.

- The cost of equity is 13%, which is based on the risk free rate of 5.49% and a beta of 1.

The actual share price in June 2003 of HVN was $2.51. The predicted value for the share price in 2003 from the analysis was $2.31. The 8% difference between the actual share price and the predicted share price is probably as a result of the model not capturing all the inside information and the market expectations of the company.

Table of Contents

1 Introduction

1.1 Objective

The underlying purpose of this report is to discuss the relevant theories for valuation, and to explore their application in a real life scenario. This report aims to obtain a valuation for Harvey Norman Ltd. (HVN) in 2003. This is done through the analysis of different models and applying the model that is most suitable to Harvey Norman Ltd. The valuation is done by calculating the Free Cash Flow to Equity (FCFE) and then applying the FCFE discount model proposed by Damodaran (2002). The results were then compared to the observed share price during the same period.

2 Profile of Harvey Norman[1]

2.1 Background

From its 1982 beginning in Sydney, Harvey Norman has grown to be one of Australia's most successful retail store chains with a market value in excess of $3 billion in 2003. Harvey Norman Holdings Limited is primarily involved in the provision of franchised retailing services to owners of Harvey Norman franchisees, consumer finance, property investment and development in Australia, New Zealand and Singapore.

The franchise chain is involved in the sale of furniture, lighting, small appliances, bedding and manchester, electrical goods, computers, home improvements and hardware.

2.2 International Operations

2.2.1 Australia & New Zealand:

Harvey Norman Holdings primary operations has been in Australia, followed by New Zealand. In June 2002, Harvey Norman Holdings had 125 franchise stores trading under "Harvey Norman", 8 stores trading under "DoMayne" and 4 as "Harvey Norman Lighting". HVN also has a 57% interest in the sports retail chain Rebel Sports.

2.2.2 South-East Asia:

Harvey Norman Holdings has a joint venture with Pertama Holdings Limited and owns 50.18% of Pertama through its joint venture company Harvey Norman Ossia (Asia) P/L. Pertama operates 15 stores within Singapore under the name of "Harvey Norman".

2.2.3 Europe:

HVN has 3 franchise stores in Slovenia and has intentions to expand further into Eastern Europe.

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1 Source: Fin Analysis (http://www.aspectfinancial.com.au)

3 Performance of Harvey Norman in 2003

3.1 Valuation models

There are numerous models in existence for the valuation of a firm. However the commonly used and popular models are[2]:

1. Relative Valuation

2. Dividend discount models (DDM) and

3. Free Cash Flow to Equity (FCFE) models

3.1.1 Relative Valuation

Relative valuation is based on deriving the value utilising comparable assets, standardised using a common variable such as earnings, cash flows, book value or revenue. A common approach is to value a firm by its price/earnings (P/E) ratio. This approach makes the following assumption,

- that firms in the same industry are comparable to the firm being valued

- the market on average prices the firms correctly

- Market value makes errors on the pricing of individual stocks but it is correct in the way it prices stocks on an average.

- The errors made in pricing individual stocks are corrected over time.

While price/earnings ratio is the most popular price/book value ratio and price/sales ratio are also frequently used in the valuation process as well. This model can be used where there are sufficient number of comparable firms being traded on the market and the market (on average) prices these firms correctly. The main limitation of this model in its subjective nature. Since no two firms are exactly alike in their risk and growth, the term comparable is a relative term.

3.1.2 Dividend Discount models

The simplest model of valuing equity is using the dividend discount model. This model describes the value of the stock as the present value of the expected dividends of the stock. Though simple, this model draws heavily upon the intuition of discounted cash flows.

In the general form this is described mathematically as:

$$Value = \sum_{t=1}^{t=\infty} \frac{E(DPS_t)}{(1+k_e)^t}$$

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2   These models and their descriptions have been extracted from Damodaran.

DPS$_t$ = Expected dividends per share
k$_e$ = Cost of equity

Gordon growth model

A practical variation of this model is the Gordon growth model. Since projections of dividend are rarely made through to infinity, the Gordon growth model values based on the expected dividends in the next time period, cost of equity and the expected growth rate in dividends.

$$Value = \frac{FCFE_1}{k_e - g_n}$$

DPS$_t$ = Expected dividends for next year
k$_e$ = Cost of equity
g = Growth rate in dividends forever

This model is best suited to evaluate firms with an established dividend payout policy and have a stable growth rate which is equal to or lower than the nominal growth in the economy. Limitation of the Gordon growth model is that it is extremely sensitive to the estimated growth rate. As growth rate approaches the cost of equity, the stock value approaches infinity, giving nonsensical results. Therefore when applying this model it is crucial that the estimated stable growth rate is derived using the proper constraints[3].

Two-stage growth model

The two-stage model takes into account two different growth periods for the firm. An initial phase of high growth rate followed by a stable growth rate forever into the future.

$$Value = \sum_{t=1}^{t=n} \frac{DPS_t}{(1 + k_{e,hg})^t} + \frac{P_n}{(1 + k_{e,hg})^n}$$

$$P_n = \frac{DPS_{n+1}}{(k_{e,st} - g_n)}$$

DPS$_t$ = Expected dividends per share in year t
k$_e$ = Cost of equity (hg: high growth, st: stable growth)
P$_n$ = Price at the end of year n
g$_n$ = Growth rate forever after year n

This model is suitable for firms that are expected to have an initial high growth period followed by a steady growth into the future. A firm with an innovative patented product having supernormal growth during the period of monopoly provided by the patent, followed by an normal growth rate upon the expiry of the monopoly would be an example of a firm where the two-stage growth model would be applicable.

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3 A more thorough discussion on the limitations of the Gordon growth model can be found on page 324 of Damodaran.

Accurately predicting the length of the high growth period is one of the limitations posed by this model. A second weakness of this model is that it tends to undervalue a firm that chooses to accumulate cash and pay out small dividends. Also the assumption that the growth rate is transformed overnight from a high growth period to a steady growth period is one of the key limitation of this model[4]. While this does happen to firms, it is more likely that the growth rate changes gradually over a period of time.

Three-Stage dividend Discount Model

This model tries to address the weakness of the two-stage model of having an instantaneous change in the growth rate. The three-stage model has three stages comprising of a high growth period, a period where the growth is declining and a stable growth period.

The three-stage model is mathematically defined as:

$$P_0 = \sum_{t=1}^{t=n1} \frac{EPS_0 \times (1+g_a)^t \times \prod_a}{(1+k_{e,hg})^t} + \sum_{t=n1+1}^{t=n2} \frac{DPS_t}{(1+k_{e,t})^t} + \frac{EPS_{n2}(1+g_n) \times \prod_n}{(k_{e,st}-g_n)(1+r)^n}$$

EPS_t = Earnings per share in year t
DPS_t = Dividends per share in year t
g_a = Growth rate in high-growth phase (lasts n1 periods)
$\prod_a$ = Payout ratio in high-growth phase
$\prod_n$ = Payout ratio in stable growth phase
k_e = Cost of equity in high growth (hg), transition (t) and stabge growth (st)

This model's flexibility allows it to be used for any firm that is changing its growth rate over time. It is specially suited for firms that are growing at an extraordinary rate at present and is expected to loose its differentiating advantage over time.

3.1.3 FCFE discount model

The Free Cash Flow to Equity (FCFE) model is similar to dividend discount model described above except for the use of free cash flow to equity rather than dividend. This model is able to better predict the true value as it takes into account the available cash instead of just the amount paid as dividends. This also allows the comparison of firms with different dividend policies.

Free cash flow to equity is found by the formula:

Free cash to equity = Net income
  - (Capital expenditure – Depreciation)
  - (Change in non cash working capital)
  + (New debt issued – Debt repayments)

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4 Further discussion on the limitations of the two-stage growth model can be found on page 330 of Damodaran

This formula provides the FCFE for the firm. The FCFE per share is obtained by dividing FCFE by the number of outstanding shares.

As in the dividend discount model, there are three versions based on growth patterns of single-stage, two-stage and three-stage.

Single-stage FCFE discount model

The single-stage growth FCFE model is designed to value firms with a stable growth rate. Similar to the Gordon growth model this is based on the expected FCFE for the next period, the stable growth rate and the required rate of return.

$$Value = \frac{FCFE_1}{k_e - g_n}$$

$FCFE_1$ = Expected FCFE for next period
k_e = Cost of equity of the firm
g_n = Growth rate in FCFE for the firm forever

Two-stage FCFE discount model

In the two stage growth model the growth is broken up into two parts consisting of an initial period of high growth followed by a stable rate afterwards.

$$Value = \sum_{t=1}^{t=n} \frac{FCFE_t}{(1 + k_{e,hg})^t} + \frac{P_n}{(1 + k_{e,hg})^n}$$

$FCFE_t$ = Free cash flow to equity in year t
P_n = Price at the end of extraordinary growth period.
K_e = Cost of equity in high growth and stable periods

Three-stage FCFE discount model

This model is designed to value firms that are expected to grow in three stages – an initial phase of high growth, a transition period and a stable growth period.

$$Value = \sum_{t=1}^{t=n1} \frac{FCFE_t}{(1 + k_e)^t} + \sum_{t=n1+1}^{t=n2} \frac{FCFE_t}{(1 + k_e)^t} + \frac{P_{n2}}{(1 + k_e)^{n2}}$$

$FCFE_t$ = FCFE in year t
k_e = Cost of equity
P_{n2} = Terminal price at end of transition period
$n1$ = End of high growth period
$n2$ = End of transition period

3.2 Estimation of growth

The value of the firm is determined by the expected cash flow by the firm in the future. The growth rate of future earnings and the cash flow of the firm will influence the value of the firm. Each firm has its own unique growth rate as well as each market has its own growth rate.

There are many ways of calculating the growth rate of a firm. The three popular methods of estimating the growth rate are,

- historical growth rate

- analyst estimates of growth

- growth from firm's fundamentals

3.2.1 Historical Growth

Estimating the growth rate based on historical growth while not a very accurate predictor of future growth does provide a quick reference point for the growth of the firm.
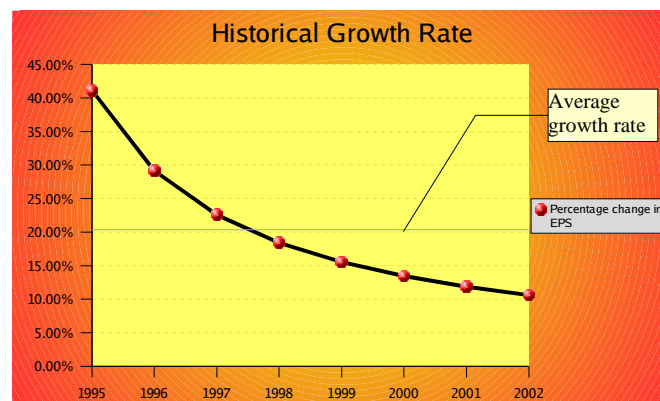
Figure 1 Historical growth rate of Harvey Norman Holdings

Historical growth rate for Harvey Norman averages to **21.7%** (Figure 1) when calculated using the growth of EPS over the period of 1995 to 2002.

3.2.2 Analyst Forecast of Growth

Many firms with large market capitalization are followed closely by analysts. Such analysts make estimates on the expected growth of the firm. Since the analyst can take into account additional information[5] such as macroeconomic information, public announcements regarding the firm in estimating the growth, it is generally considered a more accurate prediction. However as the influence of the additional information is subjective, individual analysts forecast could be inaccurate. Where there are many analysts providing forecast on average the forecast provided by the analysts has proven to be more accurate than that obtain through historical data[6].

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5   Refer to page 280 on Damodaran for a more detailed discussion on the types of information available to analysts.
6   Source, Damodaran, page 281

Analyst estimates of the growth of Harvey Norman into 2004 is given as **13.9%**[7].

3.2.3 Growth from Firms Fundamentals

Historical growth and growth forecast of analyst provide an estimate of the firms growth based on external variables which are independent of the operating details of the firm. Yet the operating details form the basis of the growth of the firm. Prediction of growth based on the fundamentals of a firm aim to achieve this.

While there are many operating variables upon which growth can be calculated this report has taken the growth in earnings per share as a measure of the firms growth rate. Growth in earnings per share is calculated as,

$$g_t = b \times ROE$$

g_t = growth rate
b = plowback ratio = 1 – (DPS/EPS)
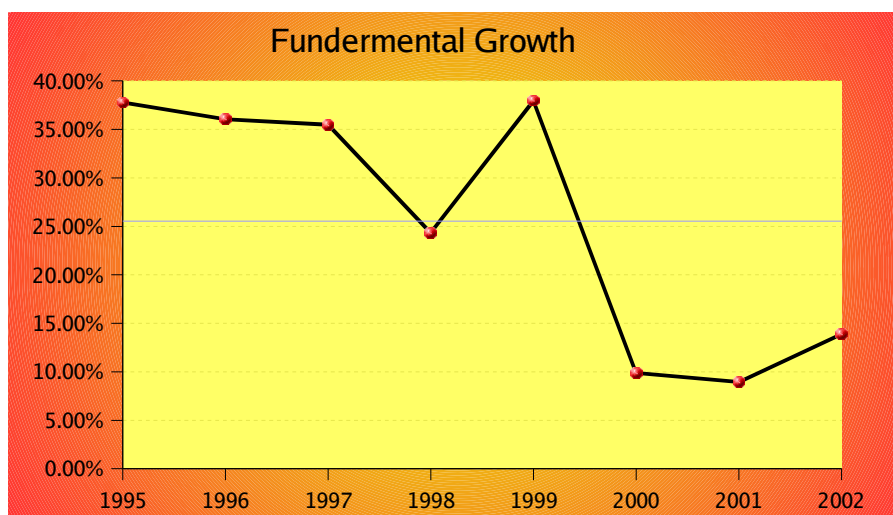
Figure 2Growth rate based on the fundamentals

Growth rate based on the fundamentals yields an average growth rate of **25.54%** (Figure 2) over the period of 1994 to 2002.

3.3 Estimation of the Cost of Capital using CAPM

The cost of equity is the rate of return required by investors on their investment in a firm. Capital Asset Pricing Model (CAPM) is used to find the cost of equity for the firm. CAPM describes the cost of equity (K_e) as:

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

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7   Source Fin Analysis (http://www.aspectfinancial.com.au)

K_e = Cost of equity
R_f = Risk free rate of return on securities
$E[R_m]$ = Expected return on market index

Risk free rate which is taken as that of 10 year government treasury bonds which was 5.49%[8] in August 2003. The expected return on market was taken as 13%[9] and   was taken to be 1[10].

Using these the cost of equity for Harvey Norman Holdings is calculated as **13.0%**.

4 Selection of a Model

After evaluating the three models described above the constant growth FCFE model was selected to value the share price of Harvey Norman. This model was chosen for the following reasons:

- FCFE takes into account such factors as depreciation, amortisation, capital expenditure, change in non-cash net working capital and repayments and proceeds from new debts issued to determine free cash flow to equity. It calculates the amount of cash the firm has after meeting all its financial obligations.

- The dividends paid lies at the discretion of management and often firms pay less than the available free cash as dividends[11] and retain part of it for future investments. Since the FCFE model looks at the free cash flow of the firm instead of the dividends, it is able to provide a better picture of the cash available to be paid out the shareholders. Harvey Norman's dividends are much less than the FCFE, averaging around 35% over the analysis period. Because of this, the valuation model based on FCFE offers a more accurate valuation of the firm's share price.

- Constant growth model was chosen as Harvey Norman is an established firm that is not expected to have supernormal growth in the future.

5 Forecasted FCFE and Valuation

Estimation of Harvey Norman Holdings' free cash flow for 2003 and the free cash flow to equity was calculated using the formula described previously in section 4.1.3.   Using these, Harvey Norman's FCFE is expected to grow at a stable rate of **3.16%** for the near future. Therefore by application of the FCFE model for 2002 it provided an FCFE value of **$0.22** per share and an estimated value of **$0.23** per share in 2003.

When Harvey Norman Holdings' free cash flow for 2003 and the free cash flow to equity was calculated as described above, it predicts a FCFE value of $0.23 per share.

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8   Source Reserve Bank of Australia (http://www.rba.gov.au)
9   Source Professor Ariff
10 Source Professor Ariff
11 Some firms payout dividends greater than the free cash flow available. These firms have to finance these dividend payments either out of existing cash reserves or by making additional share issues. (Damodaran, 2002, page 355)

FCFE$_0$	g	K$_e$	FCFE$_1$	Valuation
$0.2206	3.16%	13.00%	$0.2276	$2.31

Table 1FCFE valuation for Harvey Norman

Based on this the FCFE model estimates the price of HVN shares in 2003 as being **$2.31**. The actual market price for HVN shares in June was $2.51. This indicates that the market price of HVN is over priced by 8% from its actual value.

In the period following 2000 HVN had a higher growth rate of 5.06%. Calculation of the FCFE based on the higher growth rate provides the following results:

FCFE$_0$	g	K$_e$	FCFE$_1$	Valuation
$0.2206	5.06%	13.00%	$0.2318	$2.92

Table 2FCFE valuation for Harvey Norman during high growth period of 2000-2002

The revised calculation provides a predicted share value of **$2.92** which is higher than the market value in June by 14% and 19% higher than the average share price in 2003. If we assume the growth rate of FCFE into the future is 5.06%, then the market value of HVN shares is under priced.

The difference between the market value and the predicted value could be as a result of the markets expectations of the firm which is not captured in this model. In order to determine whether the current market price is under-valued or over-valued, one would need to undertake a detailed analysis of the strategic direction of Harvey Norman Holdings and the overall market and economy in which Harvey Norman operates in.

6 Sensitivity Analysis

6.1 Change in Growth Rate of FCFE
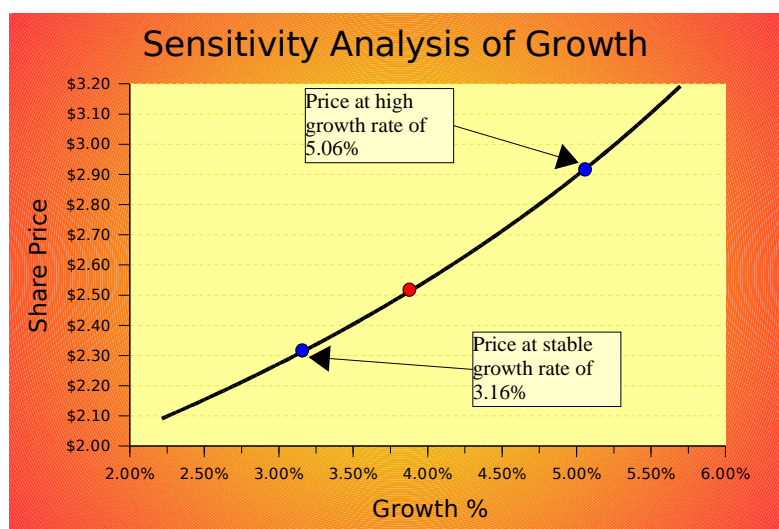
Figure 3Sensitivity of share price to changes in growth

To find the sensitivity of the share price to changes in the growth rate, the graph in Figure 3 was plotted by taking the share price at various growth rates while keeping all other variables constant. The red dot indicates the actual market price of HVN shares in June 2003, while the two blue dots indicate the predicted share prices for stable growth and high growth period using the FCFE valuation model. Figure 3 illustrates that HVN share price increases as the growth rate increases. This is expected as investments with higher growth rates would have a higher share value due to the expectation of a higher return. From Figure 3 it can be seen that for every 1% change in the growth rate, there is a 4.5% change in the share price. As the growth rate increases, the rate of change of the share prices increases as well, with it rising to approximately 6.7% at a growth rate of 5%. This shows that HVN shares are moderately sensitive to changes in growth rate.

6.2 Change in Beta

As is a measure of risk, when increases it increases the risk of the investment. Therefore an increase in translates to an increase in the cost of equity K_e. As a result when increases the share price would drop. One of the factors that change the risk of a firm is the level of debt that the firm utilises. Figure 4 shows the sensitivity of K_e to changes in .
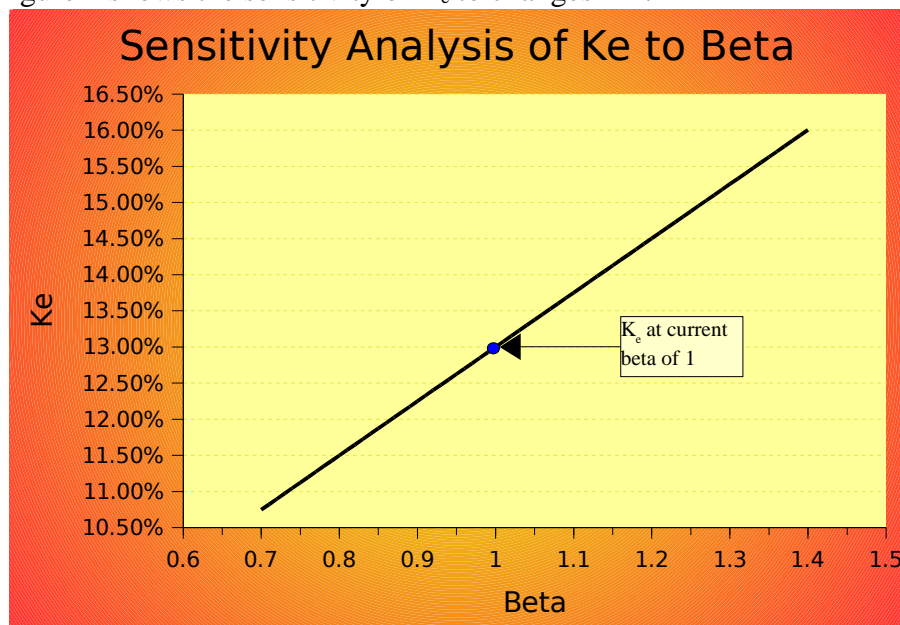
Figure 4Sensitivity of K_e to changes in Beta

6.3 Change in K_e rate

When risk changes the cost of equity it has a corresponding change in the price of the shares. Figure 5 Shows the relationship of HVN shares to changes in K_e. From this it can be clearly seen that the share price varies inversely to changes in the cost of equity.
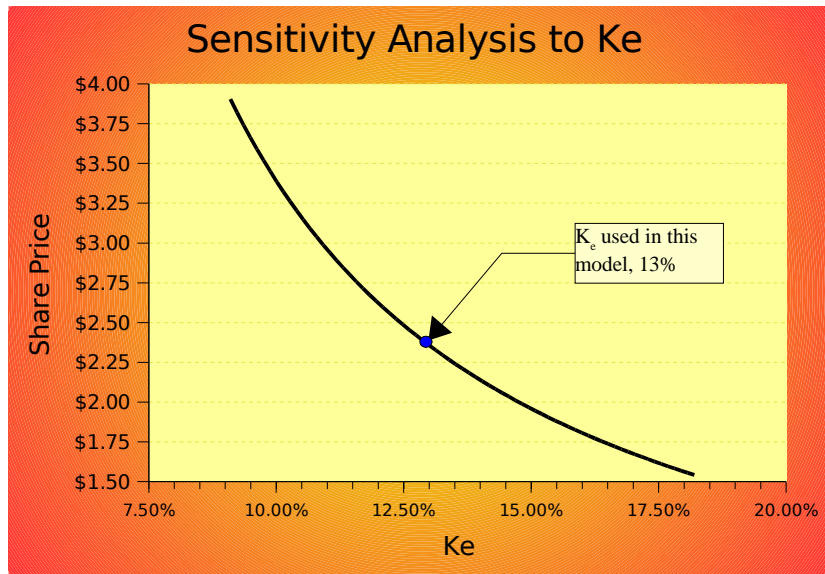
Figure 5Sensitivity of share price to changes in cost of equity

The analysis shows that HVN shares are quite sensitive to changes in K_e. A 0.5% increase in the cost of equity results in a drop in share prices of approximately 5%.

6.4 Change in Free Cash Flow to Equity per share
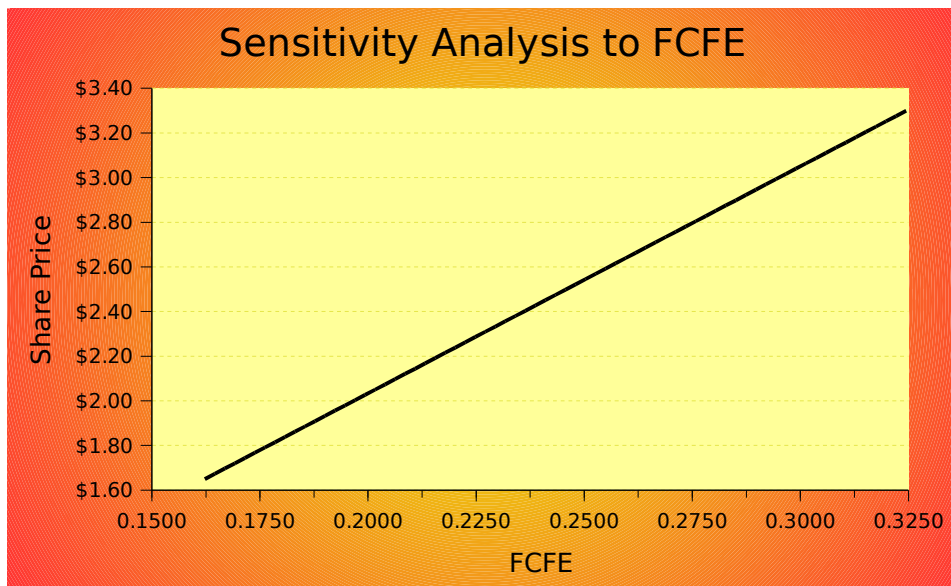
Figure 6Sensitivity analysis of share price to FCFE

FCFE is the free cash flow available for shareholders after paying out capital investments and all other stakeholders in the firm. Therefore an increase in the FCFE would mean a higher potential return to shareholders. Therefore an increase in FCFE would result in a higher value for the stock, and would be reflected in a higher share price. As seen from Figure 6 FCFE has a perfect positive correlation with share price.

7 Conclusion

The valuation analysis undertaken in this report predicted a value of **$2.31** for HVN shares in 2003 using the one-stage FCFE model. The actual value of HVN shares in June 2003 was **$2.51**. Therefore according to the valuation HVN shares are overpriced by about 8%.

Market Share Price	Predicted Share Price
$2.51	$2.31

If we assume the market is efficient and the price of $2.51 represents the true value of the shares, then the difference can be explained as shortcomings of the valuation model. This can be due to the fact that not all the inside information is known and absorbed into the valuation model. Furthermore the model is unable to take into account the market expectations of future earnings. However if we accept that the market is not completely efficient and does make mistakes, then it can be that the predicted value is accurate and the market value is overpriced.

Overall the selected model (one-stage FCFE) was able to predict the share value to an acceptable level of accuracy and thus would be a suitable model to apply for the valuation of Harvey Norman Holdings shares.

8 References

1. Brealey, R, Myers, S (2003) Principles of Corporate Finance, McGraw-Hill, New York
2. Damodaran, Aswath (2002) Investment Valuation Second Edition, John Wiley & Sons Inc., New York
3. http://www.aspectfinancial.com.au
4. http://www.damodaran.com
5. http://www.rba.gov.au
6. http://www.abs.gov.au

9 Appendices

9.1 Appendix A - Financial Statements of Harvey Norman Holdings

($millions)	June 1994	June 1995	June 1996	June 1997	June 1998	June 1999	June 2000	June 2001	June 2002	June 2003
Current Assets										
Cash	8.46	38.2	7.66	7.18	1.2	3.15	37.38	23.02	30.26	26.97
Debtors	119.1	166.4	180.2	181.1	220.6	326	444.9	487.7	526.3	652.7
Other Debtors	16.69	26.11	27.26	35.98	34.73	32.47	31.22	40.57	41.94	0
Prepaid Expenses	0.75	2.21	1.69	4.29	1.45	2.83	3.52	16.69	11.48	0
Inventories	8.2	9.86	12.07	13.04	29.06	24.6	61	88.05	154.93	188.54
Curr. Investments	0	0	0	0	0	6.79	10.03	8.46	10.47	8.62
Other CA	0	0	0	0	0	0	0	0	1.44	5.99
Total Curr. Assets	**153.2**	**242.8**	**228.9**	**241.6**	**287.1**	**395.8**	**588**	**664.5**	**776.8**	**882.9**
Non-Current Assets										
Receivables	6.92	11.43	5.49	9.08	9	8.51	9.07	12.29	9.7	11.95
Investments	4.58	4.77	18.95	19.59	26.67	37.88	10.4	46.92	61.25	63.73
Inventories	0	0	0	0	0	0	0	0	0	18.6
PP&E	102.5	126.3	189.8	274.3	363.8	451.4	636.2	791.7	1018.7	928.6
Accumulated Depr.	-11.53	-16.34	-24.03	-33.44	-45.53	-62.88	-89.05	-137.17	-218.13	0
Intangibles Ex. Goodwill	0	0	0	0	7.33	0	0	0	0	12.01
Goodwill	3	2.77	2.54	0	0	0	0.59	0.69	13.23	0
FITB	1.42	1.66	2.13	3.2	3.89	3.75	2.57	2.29	6.98	7.95
Other NCA	0	0	0	0	0	0	0	0	0	0
Total NCA	**106.9**	**130.5**	**194.9**	**272.7**	**365.2**	**438.7**	**569.7**	**716.7**	**891.7**	**1042.9**
Total Assets	**260.1**	**373.4**	**423.8**	**514.4**	**652.2**	**834.5**	**1157.8**	**1381.2**	**1668.5**	**1925.7**
Current Liabilities										
Accounts Payable	72.5	95.8	125.3	127.7	187.4	216.4	312.1	328.9	395.2	429.3
Provisions	15.47	21.79	20.11	22.27	33.61	48.55	58.11	54.05	63.97	34.14
S/T Debt	18.99	6.98	9.63	10.66	12.3	12.4	33.59	101.62	31.96	25.73
Other CL	0	0	0	0	0	0	0	1.54	3.78	6.36
Total CL	**106.9**	**124.6**	**155**	**160.7**	**233.3**	**277.3**	**403.8**	**486.2**	**494.9**	**495.6**
Non-Current Liabilities										
Accounts Payable	0	0	0	0	0	0	0	0	0.03	0
L/T Debt	51.01	88.55	52	95.95	83.87	152.15	203.22	239.19	291.03	390.79
Provisions	0.35	0.44	0.28	0.28	0.21	0.24	0.39	0.51	1.36	1.34
Other NCL	0	0	0	0	0	0	0	1.56	5.28	3.99
Total NCL	**51.36**	**88.99**	**52.28**	**96.23**	**84.08**	**152.39**	**203.61**	**241.25**	**297.71**	**396.12**

Shareholders Equity

Share Capital	15.4	18	19.2	19.2	19.9	142.9	187.8	142.9	246.6	246.6
Reserves Ex. SPR	15.42	17.32	23.13	40.1	49.26	58.61	83.55	115.89	136.12	171.69
Share Prem Reserves	23.1	52.6	82	82	111.8	0	0	0	0	0
Retained Profits	47.84	71.89	92.24	116.26	153.9	203.35	278.98	342.46	423.22	547.87
Other Equity	0	0	0	0	0	0	0	0	0	0
Convertible Equity	0	0	0	0	0	0	0	0	0	0
Outside Equity	0	0	0	0	0	0	0	52.6	70	67.9
Total Equity	**101.8**	**159.8**	**216.5**	**257.5**	**334.9**	**404.8**	**550.3**	**653.8**	**875.9**	**1034**

($millions)	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Operating Revenue	74.4	112.3	119.75	158.66	225.36	317.23	487.93	661.91	1108.69	1395.56
Other Revenue	0.28	0.69	6.52	6.17	10.16	7.9	17.13	12.72	33.35	2.68
Total Revenue (Ex. Int)	**74.7**	**113**	**126.3**	**164.8**	**235.5**	**325.1**	**505.1**	**674.6**	**1142**	**1398.2**

9.2 Appendix B - Cash Flow Statements

($millions)	June 1994	June 1995	June 1996	June 1997	June 1998	June 1999	June 2000	June 2001	June 2002	June 2003
Operating Cashflows										
Rcpts from Customers	27.5	81.3	77.9	37.8	74.7	110.9	231.7	358.7	788.9	1306.3
Payments to Suppliers	-14.2	-47.2	-52.5	-90.7	-132.6	-148	-262.3	-434.6	-799.5	-1086.5
Dividends Received	0	0	0	0	0.08	0.3	0.44	0.44	2.72	2.75
Interest Received	7.92	1.42	2.16	0.57	0.74	1	0.8	2.14	3.77	4.69
Interest Paid	-4.01	-7.64	-9.3	-7.85	-6.98	-8.47	-14.22	-21.49	-21.86	-25.8
Taxes Paid	-9.74	-11.81	-19.51	-22.31	-25.85	-39.87	-57.7	-61.33	-62.79	-76.05
Other Op CF	0	0	69.1	112.1	151.8	167.8	223.1	217.4	277.7	-17.1
Net Operating CF	**7.48**	**16.06**	**67.79**	**29.7**	**61.94**	**83.61**	**121.87**	**61.15**	**188.95**	**108.38**
Investing Cashflows										
Cash Paid for PP&E	-24.49	-27.89	-63.66	-69.08	-62.56	-112.83	-138.71	-127.23	-145.61	-161.08
Sale of PP&E	0.15	0.62	3.42	2.7	2.96	1.46	2.9	2.1	2.37	2.61
Purchase of Investments	-4.64	-0.18	-14.4	-15.71	-11.28	-15.52	-10.46	-24.35	-21.08	-5.31
Proceeds from Invests	0.11	0	0	12.23	4.52	0	18.94	8.8	7.61	3.12
Purch of Subsidiaries	0	0	0	0	0	0	13.87	0	-24.83	0
Proceeds from Subsid	0	0	0	0	0	0	0	0	0	0
Loans Granted	-0.59	0	-12	0	-5.49	-3.57	-10.44	-1.63	-8.28	0
Loans Repaid	0	0	0	6.41	0	1.35	0	0	0	0.55
Other Investing CF	0	0	7.21	0	0	-7.37	0	0	0	7.97
Net Investing CF	**-29.46**	**-27.45**	**-79.44**	**-63.46**	**-71.85**	**-136.48**	**-123.9**	**-142.31**	**-189.82**	**-152.15**
Financing Cashflows										
Proceeds from Issues	10.5	32.07	30.53	0	30.57	11.17	0	0	49.73	0
Proceeds from Borrow	12.43	15.57	26.61	43.82	0	69.02	66.81	93.81	12.87	101.34
Repayment of Borrow	0	0	-63.16	0	-9.97	0	0	0	-6.56	-6.32
Dividends Paid	-5.13	-7.5	-9.28	-10.53	-16.67	-25.38	-30.55	-40.73	-41.48	-53.14
Other Financing CF	0	0	0	0	0	0	0	0	0	0
Net Financing CF	**17.81**	**40.13**	**-15.3**	**33.28**	**3.92**	**54.82**	**36.27**	**53.09**	**14.56**	**41.88**
Net Increase in Cash	**-4.17**	**28.74**	**-26.94**	**-0.48**	**-5.98**	**1.94**	**34.24**	**-28.08**	**13.69**	**-1.88**
Cash at Beginning	10.03	5.86	34.6	7.66	7.18	1.2	3.15	37.38	9.31	22.99
Exchange Rate Adjs	0	0	0	0	0	0	0	0	0	0
Other Cash Adjs	0	0	0	0	0	0	0	0	0	0

9.3 Appendix C - Adjustments to Net Income

Net Income used for FCFE model had to be adjusted from the net income provided in the financial statements in order to reflect the true financial value. The adjusted net income was calculated as:

> Adjusted Net Income = Revenue – Payments to suppliers – Interest paid – Tax

The table below shows the adjusted figures used in the calculations.

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Adjusted net Income	46.75	46.35	44.99	43.94	70.07	128.76	170.88	157.18	257.85	209.85

9.4 Appendix D - Sensitivity Analysis of Growth

% change	G	FCFE$_1$	Valuation	% change	G	FCFE$_1$	Valuation
-0.3	2.22%	0.2255	$2.09	0.22	3.86%	0.2291	$2.51
-0.29	2.25%	0.2256	$2.10	0.23	3.89%	0.2292	$2.52
-0.28	2.28%	0.2256	$2.10	0.24	3.92%	0.2293	$2.53
-0.27	2.31%	0.2257	$2.11	0.25	3.96%	0.2293	$2.54
-0.26	2.34%	0.2258	$2.12	0.26	3.99%	0.2294	$2.55
-0.25	2.37%	0.2258	$2.13	0.27	4.02%	0.2295	$2.56
-0.24	2.41%	0.2259	$2.13	0.28	4.05%	0.2295	$2.56
-0.23	2.44%	0.2260	$2.14	0.29	4.08%	0.2296	$2.57
-0.22	2.47%	0.2261	$2.15	0.3	4.11%	0.2297	$2.58
-0.21	2.50%	0.2261	$2.15	0.31	4.15%	0.2298	$2.59
-0.2	2.53%	0.2262	$2.16	0.32	4.18%	0.2298	$2.60
-0.19	2.56%	0.2263	$2.17	0.33	4.21%	0.2299	$2.62
-0.18	2.60%	0.2263	$2.18	0.34	4.24%	0.2300	$2.63
-0.17	2.63%	0.2264	$2.18	0.35	4.27%	0.2300	$2.64
-0.16	2.66%	0.2265	$2.19	0.36	4.30%	0.2301	$2.65
-0.15	2.69%	0.2265	$2.20	0.37	4.34%	0.2302	$2.66
-0.14	2.72%	0.2266	$2.20	0.38	4.37%	0.2302	$2.67
-0.13	2.75%	0.2267	$2.21	0.39	4.40%	0.2303	$2.68
-0.12	2.78%	0.2268	$2.22	0.4	4.43%	0.2304	$2.69
-0.11	2.82%	0.2268	$2.23	0.41	4.46%	0.2305	$2.70
-0.1	2.85%	0.2269	$2.23	0.42	4.49%	0.2305	$2.71
-0.09	2.88%	0.2270	$2.24	0.43	4.53%	0.2306	$2.72
-0.08	2.91%	0.2270	$2.25	0.44	4.56%	0.2307	$2.73
-0.07	2.94%	0.2271	$2.26	0.45	4.59%	0.2307	$2.74
-0.06	2.97%	0.2272	$2.27	0.46	4.62%	0.2308	$2.75
-0.05	3.01%	0.2272	$2.27	0.47	4.65%	0.2309	$2.77
-0.04	3.04%	0.2273	$2.28	0.48	4.68%	0.2309	$2.78
-0.03	3.07%	0.2274	$2.29	0.49	4.72%	0.2310	$2.79
-0.02	3.10%	0.2274	$2.30	0.5	4.75%	0.2311	$2.80
-0.01	3.13%	0.2275	$2.31	0.51	4.78%	0.2312	$2.81
0	3.16%	0.2276	$2.31	0.52	4.81%	0.2312	$2.82
0.01	3.20%	0.2277	$2.32	0.53	4.84%	0.2313	$2.84
0.02	3.23%	0.2277	$2.33	0.54	4.87%	0.2314	$2.85
0.03	3.26%	0.2278	$2.34	0.55	4.91%	0.2314	$2.86
0.04	3.29%	0.2279	$2.35	0.56	4.94%	0.2315	$2.87
0.05	3.32%	0.2279	$2.36	0.57	4.97%	0.2316	$2.88
0.06	3.35%	0.2280	$2.36	0.58	5.00%	0.2316	$2.90
0.07	3.39%	0.2281	$2.37	0.59	5.03%	0.2317	$2.91
0.08	3.42%	0.2281	$2.38	0.6	5.06%	0.2318	$2.92
0.09	3.45%	0.2282	$2.39	0.61	5.10%	0.2318	$2.93
0.1	3.48%	0.2283	$2.40	0.62	5.13%	0.2319	$2.95
0.11	3.51%	0.2284	$2.41	0.63	5.16%	0.2320	$2.96
0.12	3.54%	0.2284	$2.42	0.64	5.19%	0.2321	$2.97
0.13	3.58%	0.2285	$2.42	0.65	5.22%	0.2321	$2.98
0.14	3.61%	0.2286	$2.43	0.66	5.25%	0.2322	$3.00
0.15	3.64%	0.2286	$2.44	0.67	5.29%	0.2323	$3.01
0.16	3.67%	0.2287	$2.45	0.68	5.32%	0.2323	$3.02
0.17	3.70%	0.2288	$2.46	0.69	5.35%	0.2324	$3.04
0.18	3.73%	0.2288	$2.47	0.7	5.38%	0.2325	$3.05
0.19	3.77%	0.2289	$2.48	0.71	5.41%	0.2325	$3.06
0.2	3.80%	0.2290	$2.49	0.72	5.44%	0.2326	$3.08
0.21	3.83%	0.2291	$2.50	0.73	5.47%	0.2327	$3.09

% change	G	FCFE$_1$	Valuation
0.74	5.51%	0.2328	$3.11
0.75	5.54%	0.2328	$3.12
0.76	5.57%	0.2329	$3.13
0.77	5.60%	0.2330	$3.15
0.78	5.63%	0.2330	$3.16
0.79	5.66%	0.2331	$3.18
0.8	5.70%	0.2332	$3.19

9.5 Appendix E - Sensitivity Analysis of K$_e$

% change	K$_e$	Valuation
-0.3	9.10%	$3.90
-0.29	9.23%	$3.82
-0.28	9.36%	$3.74
-0.27	9.49%	$3.66
-0.26	9.62%	$3.59
-0.25	9.75%	$3.52
-0.24	9.88%	$3.45
-0.23	10.01%	$3.39
-0.22	10.14%	$3.32
-0.21	10.27%	$3.26
-0.2	10.40%	$3.20
-0.19	10.53%	$3.15
-0.18	10.66%	$3.09
-0.17	10.79%	$3.04
-0.16	10.92%	$2.99
-0.15	11.05%	$2.94
-0.14	11.18%	$2.89
-0.13	11.31%	$2.85
-0.12	11.44%	$2.80
-0.11	11.57%	$2.76
-0.1	11.70%	$2.72
-0.09	11.83%	$2.67
-0.08	11.96%	$2.64
-0.07	12.09%	$2.60
-0.06	12.22%	$2.56
-0.05	12.35%	$2.52
-0.04	12.48%	$2.49
-0.03	12.61%	$2.45
-0.02	12.74%	$2.42
-0.01	12.87%	$2.39
0	13.00%	$2.36
0.01	13.13%	$2.33
0.02	13.26%	$2.30
0.03	13.39%	$2.27
0.04	13.52%	$2.24
0.05	13.65%	$2.21
0.06	13.78%	$2.18
0.07	13.91%	$2.16
0.08	14.04%	$2.13
0.09	14.17%	$2.11
0.1	14.30%	$2.08
0.11	14.43%	$2.06
0.12	14.56%	$2.03
0.13	14.69%	$2.01
0.14	14.82%	$1.99
0.15	14.95%	$1.97
0.16	15.08%	$1.95
0.17	15.21%	$1.92
0.18	15.34%	$1.90
0.19	15.47%	$1.88
0.2	15.60%	$1.86
0.21	15.73%	$1.84

% change	K$_e$	Valuation
0.22	15.86%	$1.83
0.23	15.99%	$1.81
0.24	16.12%	$1.79
0.25	16.25%	$1.77
0.26	16.38%	$1.75
0.27	16.51%	$1.74
0.28	16.64%	$1.72
0.29	16.77%	$1.70
0.3	16.90%	$1.69
0.31	17.03%	$1.67
0.32	17.16%	$1.66
0.33	17.29%	$1.64
0.34	17.42%	$1.63
0.35	17.55%	$1.61
0.36	17.68%	$1.60
0.37	17.81%	$1.58
0.38	17.94%	$1.57
0.39	18.07%	$1.55
0.4	18.20%	$1.54

9.6 Appendix F - Sensitivity Analysis of Beta

% change	β	K_e	Valuation
-0.3	0.7	10.75%	$4.07
-0.29	0.71	10.82%	$4.02
-0.28	0.72	10.90%	$3.97
-0.27	0.73	10.97%	$3.92
-0.26	0.74	11.05%	$3.87
-0.25	0.75	11.12%	$3.82
-0.24	0.76	11.20%	$3.77
-0.23	0.77	11.27%	$3.73
-0.22	0.78	11.35%	$3.68
-0.21	0.79	11.42%	$3.64
-0.2	0.8	11.50%	$3.60
-0.19	0.81	11.57%	$3.56
-0.18	0.82	11.65%	$3.52
-0.17	0.83	11.72%	$3.48
-0.16	0.84	11.80%	$3.44
-0.15	0.85	11.87%	$3.40
-0.14	0.86	11.95%	$3.36
-0.13	0.87	12.02%	$3.33
-0.12	0.88	12.10%	$3.29
-0.11	0.89	12.17%	$3.26
-0.1	0.9	12.25%	$3.22
-0.09	0.91	12.32%	$3.19
-0.08	0.92	12.40%	$3.16
-0.07	0.93	12.47%	$3.13
-0.06	0.94	12.55%	$3.09
-0.05	0.95	12.62%	$3.06
-0.04	0.96	12.70%	$3.03
-0.03	0.97	12.77%	$3.00
-0.02	0.98	12.85%	$2.97
-0.01	0.99	12.92%	$2.95
0	1	13.00%	$2.92
0.01	1.01	13.08%	$2.89
0.02	1.02	13.15%	$2.86
0.03	1.03	13.23%	$2.84
0.04	1.04	13.30%	$2.81
0.05	1.05	13.38%	$2.79
0.06	1.06	13.45%	$2.76
0.07	1.07	13.53%	$2.74
0.08	1.08	13.60%	$2.71
0.09	1.09	13.68%	$2.69
0.1	1.1	13.75%	$2.67
0.11	1.11	13.83%	$2.64
0.12	1.12	13.90%	$2.62
0.13	1.13	13.98%	$2.60
0.14	1.14	14.05%	$2.58
0.15	1.15	14.13%	$2.56
0.16	1.16	14.20%	$2.53
0.17	1.17	14.28%	$2.51
0.18	1.18	14.35%	$2.49
0.19	1.19	14.43%	$2.47
0.2	1.2	14.50%	$2.45

% change	β	K_e	Valuation
0.21	1.21	14.58%	$2.43
0.22	1.22	14.65%	$2.42
0.23	1.23	14.73%	$2.40
0.24	1.24	14.80%	$2.38
0.25	1.25	14.88%	$2.36
0.26	1.26	14.95%	$2.34
0.27	1.27	15.03%	$2.32
0.28	1.28	15.10%	$2.31
0.29	1.29	15.18%	$2.29
0.3	1.3	15.25%	$2.27
0.31	1.31	15.33%	$2.26
0.32	1.32	15.40%	$2.24
0.33	1.33	15.48%	$2.22
0.34	1.34	15.55%	$2.21
0.35	1.35	15.63%	$2.19
0.36	1.36	15.70%	$2.18
0.37	1.37	15.78%	$2.16
0.38	1.38	15.85%	$2.15
0.39	1.39	15.93%	$2.13
0.4	1.4	16.00%	$2.12

9.7 Appendix G - Sensitivity Analysis of FCFE

% change	FCFE	Valuation
-0.3	0.1622	$1.65
-0.29	0.1646	$1.67
-0.28	0.1669	$1.70
-0.27	0.1692	$1.72
-0.26	0.1715	$1.74
-0.25	0.1738	$1.77
-0.24	0.1761	$1.79
-0.23	0.1785	$1.81
-0.22	0.1808	$1.84
-0.21	0.1831	$1.86
-0.2	0.1854	$1.89
-0.19	0.1877	$1.91
-0.18	0.1900	$1.93
-0.17	0.1924	$1.96
-0.16	0.1947	$1.98
-0.15	0.1970	$2.00
-0.14	0.1993	$2.03
-0.13	0.2016	$2.05
-0.12	0.2040	$2.07
-0.11	0.2063	$2.10
-0.1	0.2086	$2.12
-0.09	0.2109	$2.14
-0.08	0.2132	$2.17
-0.07	0.2155	$2.19
-0.06	0.2179	$2.22
-0.05	0.2202	$2.24
-0.04	0.2225	$2.26
-0.03	0.2248	$2.29
-0.02	0.2271	$2.31
-0.01	0.2294	$2.33
0	0.2318	$2.36
0.01	0.2341	$2.38
0.02	0.2364	$2.40
0.03	0.2387	$2.43
0.04	0.2410	$2.45
0.05	0.2434	$2.47
0.06	0.2457	$2.50
0.07	0.2480	$2.52
0.08	0.2503	$2.54
0.09	0.2526	$2.57
0.1	0.2549	$2.59
0.11	0.2573	$2.62
0.12	0.2596	$2.64
0.13	0.2619	$2.66
0.14	0.2642	$2.69
0.15	0.2665	$2.71
0.16	0.2688	$2.73
0.17	0.2712	$2.76
0.18	0.2735	$2.78
0.19	0.2758	$2.80
0.2	0.2781	$2.83

% change	FCFE	Valuation
0.21	0.2804	$2.85
0.22	0.2828	$2.87
0.23	0.2851	$2.90
0.24	0.2874	$2.92
0.25	0.2897	$2.95
0.26	0.2920	$2.97
0.27	0.2943	$2.99
0.28	0.2967	$3.02
0.29	0.2990	$3.04
0.3	0.3013	$3.06
0.31	0.3036	$3.09
0.32	0.3059	$3.11
0.33	0.3082	$3.13
0.34	0.3106	$3.16
0.35	0.3129	$3.18
0.36	0.3152	$3.20
0.37	0.3175	$3.23
0.38	0.3198	$3.25
0.39	0.3222	$3.28
0.4	0.3245	$3.30