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SEMESTER 2

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# Finance 361: Assignment 2

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# 1 Executive summary

## 1.1 Price and valuation date

Valuations are made on the assumption the 100 ordinary shares would be purchased.

### 1.1.1 Scenarios

Price	Price (\$/share)
<b>Base case (Preferred)</b>	<b>3,218,996</b>
Pessimistic	4,689,098
Optimistic	2,735,118
Minimum	2,735,118
Maximum	4,689,098
Midpoint	3,712,108
Date	18/10/19

Table 1: Valuation summary

### 1.1.2 Sensitivity analysis

Sensitivity analysis performed under each scenario, looking at the fluctuation in after tax weighted average cost of capital, long term growth rate, revenue growth from sales of goods and cost of sales.

Price (\$/share)	Base case	Optimistic	Pessimistic
Midpoint	5,112,527	2,195,017	4,770,369
Low	2,097,669	1,802,815	1,703,160
High	7,210,195	3,997,832	6,473,529

Table 2: Valuation prices

## 1.2 Comparables analysis

Sixteen comparable firms were used to calculate industry averages to determine the implied share price of Cloudy Bay Vineyards Limited (CBV). The following prices all align with the preferred base case DCF valuation.

Price	Price (\$/share)	Price	Price (\$/share)
P/E	2,808,859	Midpoint	2,950,762
EV/EBITDA	3,092,667	Low	2,808,859
EV/EBIT	2,962,692	High	3,092,667
EV/(EBITDA - CAPEX)	3,046,065	Date	18/10/19

Table 3: Comparable valuation summary

## 1.3 Valuation approach summary

Primary method valuation method was a discount cash flows model which tested the sensitivities for three distinct economic scenarios, supported by a comparable companies valuation with sixteen companies and four valuation metrics.

## 1.4 Most important value drivers

Driver	Value (base case)	Justification
After Tax WACC	7.47%	Drives FCFF discounting
Long term growth rate	2.70%	Drives terminal values
Revenue growth from costs of sales	11.09%	A main driver for Net Profit and FCFF
Cost of sales	41.59 %	A main driver for net profit and FCFF

Table 4: Most important valuation drivers

## 1.5 Key risks

### 1.5.1 Industry

1. Climate change: Changing temperatures and weather conditions impact optimal growing conditions and vineyard yields.
2. Bio security risk: Prone to disease spread by insects and vermin domestically and from foreign shores. Two species of Brown Marmorated Stink Bugs (BMSB) were detected in NZ this year but the threat was mitigated by MPI [NZWine, 2019].

### 1.5.2 Regulatory

1. Trade restrictions: Most produce shipped overseas. Any trade restrictions would inhibit or raise the costs of shipping produce.
2. Legislation: Changes to the drinking age both domestically and in foreign markets will have an impact on CBV.

### 1.5.3 Market

1. Economic slowdown/recession: There is speculation the global economy is heading towards lower growth and will have a small impact on the consumption of wine. However, wine is a vice so is consumed in both good and bad times.

### 1.5.4 Technology

1. Genetic modification: Vines may be genetically modified to produce grapes in unfavourable environments, leading to lower entry barriers and potentially increased competition. CBV's geography in Malborough gives the company a distinct advantage.
2. Automation could improve harvesting efficiencies and increase yields.

## 1.6 Audience

The intended recipient of this report is Charles de Vitry, the managing director in the Global Investments team at Megabank Asset Management. This report summarises the Global Investment team's opinion on the value of Cloudy Bay Vineyards Limited (CBV). It is to help make an informed decision on the expression of interest and a bid on CBV stock. The report outlines CBV, the industry, the overall economy, valuation approach, base case valuation, scenario and sensitivity analysis with regards to valuation. The supporting model is attached in the same email as the report.

## 1.7 Limitations, caveats, disclaimers

I (Sally) prepared this report. I am junior investment analyst at Megabank Asset Management, not a qualified financial advisor. The judgements in this report are my own. The valuation, scenario and sensitivity analysis are based on publically available information and may not be described to the required granularity for a thorough valuation. Many assumptions were made in reading the financial reports as some line items lacked details and the regressions are statistically noisy and poor at explaining variability in the regressed stock returns. Forecast line items may not be realised as it is difficult to forecast 10 years out. Also, past returns are not too useful for predicting future returns. Valuations are both a dark art and a craft. Please note this is for internal use only.

## 2 Context

### 2.1 Economic backdrop

#### 2.1.1 International economy

The growth in New Zealand's trading partners are continuing to deteriorate with long term forecasts indicating this trend will continue. Trade, manufacturing and business investment all continue to weaken. Global banks have made efforts with monetary policy to prevent a decline in growth. There is speculation around an economic slowdown or recession in the foreseeable future, brought on by yield curve inversion earlier this year [ANZ, 2019].

### 2.1.2 New Zealand economy

The New Zealand economy is in a ten year period of major growth. Leading indicators show a slowdown with GDP dropping from 4.4% in 2016 yoy to 2.1% yoy in June. Currently, the country's economy is relatively independent to foreign economic shocks. Growth is expected to stabilise and then recover gradually in 2020. Attempted growth may be catalysed by record low official cash rates set by the RBNZ. In summary, there is growth expected but uncertainty around when it will come [ANZ, 2019].

### 2.1.3 Primary sector economy

The global demand for New Zealand's food-based exports (including wine) is forecast to remain strong, resilient against slowing economic growth. Farmer confidence in the livestock sector is low but confidence in the horticulture sector is strong [ANZ, 2019].

## 2.2 Industry developments

The Bragato Research Institute is transforming the NZ wine industry. There are climate change programmes to model and account for climate change. They are designing, manufacturing and trialling new fermentors. There is a push for organic wines with 70 wineries in New Zealand certified. There are 776,599 international wine tourists per year spending \$3.26 billion. There are a total 716 wineries and 696 grape growers spread across every region in New Zealand. There was a total 270,364,000 litres of wine with a value of \$1,825,116,000 exported from New Zealand year ended June 2019 [NZWine, 2019].

## 2.3 The firm

Cloudy Bay Vineyards Limited offers a selection of wines (Sauvignon Blanc and Pinot Noir), merchandise, cook books, and large format bottles for purchase at its cellar door. CBV exports to Australia, USA, Europe, and Japan. CBV offers its products to customers internationally through a network of stockists and retailers. The company was founded in 1985 and is based in Marlborough, New Zealand. CBV is a subsidiary of LVMH Moët Hennessy Louis Vuitton S.E. CBV's primary industry is distillers and vintners [Standard-And-Poor, 2019].

## 3 Methodology

### 3.1 Alternative methodologies

There are three methodologies:

1. Discounted Cash Flows (DCF): Forecast out free cash flows to firm (FCFF) ( $\text{EBIT}(1 - \text{Marginal Tax Rate}) + \text{Depreciation and Amortisation} - \text{Capital expenditure} - \text{Increase in Net Working Capital}$ ). Discount the cash flows and a terminal value using a weighted average cost of capital to determine the enterprise value of the firm.
2. Comparables Analysis: Determine suitable comparable firms in the same industry. Calculate industry averages for financial metrics such as price / earnings and EV / EBITDA. Determine the implied price of the target firm based on these comparables.
3. Discount Dividend Model: Forecast dividend payments in the next year and divide the dividend by the cost of equity minus the terminal growth rate. This gives you the implied price per share.

### 3.2 Motivation for methodology preference

My preferred method is a discounted cash flows model as is the most rigorous of the valuation methods. You can forecast and flex any assumption, and develop scenarios to test your assumptions. I supported my DCF valuation with comparable analysis, looking at the implied price of CBV using P/E, EV/EBITDA, EV/EBIT and EV/(EBITDA - CAPEX) metrics. This was to cross check my base case DCF method. I don't solely rely on comparables as the statistical theory breaks down considerably with small samples sizes and regressing stocks returns to the returns of market proxies. The dividend discount model would have been useless as relies on one data point and CBV have not paid any dividends for many years.

### 3.3 Chosen methodology outline

The following process outlines how the valuation was conducted.

1. Historicals: I transcribed the previous six years worth of financial statements, making adjustments for changes in accounting policy (i.e. the introduction of the LVMH cash facility) and set the forecast period to 10 years [Office, 2019].
2. Market risk premium: I found the risk free rate by finding the average 10Y long term bond yield swap rate over the last year [RBNZ, 2019]. The market return for the base case is the annualised return of the NZX 50 over a 16.83 year period. The NXZ 50 was chosen as the proxy for the market as CBV is based and operates in New Zealand. Market risk premium = Market return - risk free rate [Yahoo, 2019].
3. After tax cost of debt: New Zealand has an Aaa Moody debt rating, with a ratings default spread of 0.00% [Damodaran, 2019]. I Multiplied the risk free rate by the marginal tax rate sourced from Deloitte [Deloitte, 2019].
4. Equity beta: Used Capital IQ [Standard-And-Poor, 2019] and screened for publically listed companies in the distillers and vintners industry. The criteria was firms who operate in the same regions as CBV and generate positive net income. I Downloaded all historical returns of the 33 companies in the screen and four proxy markets (NZX 50 for NZ, FTSE 100 for Europe, SP 500 Gross for USA, and ASX 200 for AUS) [Yahoo, 2019]. I regressed each stock's returns to their relevant market proxy (i.e. if in Europe, regressed against FTSE 100) to get each companies levered beta. Each regression was for a six year period to match CBV's financial statements. I delevered the betas using each companies D/E ratio [Standard-And-Poor, 2019]. I further eliminated 17 companies to get the final 16 comparables. I averaged the unlevered betas of the 16 comparables to get CBV's unlevered beta. I used CBV's D/E ratio to get the equity beta as the debt beta is assumed to be zero since CBV has low debt.
5. Comparables: I used the financial information from Capital IQ [Standard-And-Poor, 2019] to work out industry average P/E, EV/EBITDA, EV/EBIT and (EV/EBITDA - CAPEX). I calculated the implied price of CBV using the financials.
6. After tax weighted average cost of capital: I used CAPM to calculate the cost of equity and the WACC formula to calculate the WACC.
7. Revenue growth: I calculated the split of revenues from sales of goods to related parties in 2018 to approximate geographic splits. I calculated the CAGR for each region over a 10 year period [NZWine, 2019]. I calculated the sum product between the geographic split and CAGR to get the annualised growth rate. I assumed CBV would follow the same growth trajectory as industry. The growth tails off to the long term growth rate as the industry matures during the forecast period.
8. Cost of sales: I kept it at (1-Gross Margin).
9. expenses: I kept as the same percentage (6 year historical) of the relevant expense /sales for most expenses throughout the forecast period.
10. Other income: Interest expense due to the LVMH cash facility was the only material item. Forecast interest income was kept as the same percentage of interest income/ LVMH cash facility opening balance.
11. : Other expenses: I kept constant for each year as no granularity reported to indicate otherwise.
12. Income tax expense: I forecast using historical six year average.
13. Net working capital: Trade receivables and inventory held the same as the average historical percentage of sales as both should scale up with sales. Trade payables and employee entitlements forecast using the historical ratio over cost of sales.
14. Capital expenditure: I forecast using the historical average of additions divided by opening cost for the relevant non current asset.
15. Depreciation: I forecast using the historical average of depreciation divided by opening cost for the relevant non current asset.
16. Present value (Enterprise value): I calculated the FCFF for each period in the discount period. I calculated the terminal value of firm, growing at the long term growth rate. All cash flows were then discounted using the WACC.
17. Share value: I added the net debt to enterprise value and divided the sum by the total number of ordinary shares (100).

## 4 Valuation

### 4.1 Valuation output, key inputs and intermediate values

Factor	Base	Optimistic	Pessimistic
Price (\$/share)	\$3,218,996	\$2,735,118	\$4,689,098
Risk free rate	2.11%	3.10 %	1.11%
Market Risk Premium	8.79%	10.57%	5.29%
Equity beta	0.63	0.63	0.63
After tax cost of debt	1.52%	2.23%	0.80%
$\frac{Debt}{Equity}$ ratio	0.02	0.02	0.02
WACC	7.47%	9.54%	4.34%
Terminal value	\$387,355,974	\$353,069,846	\$511,042,637
Revenue growth rates	11.09%	14.10%	6.05%
Cost of sales	41.59%	41.59%	41.59%
Gross profit margins	58.41%	58.41%	58.41%
Net profit margins	26.72%	26.73%	26.71%

Table 5: Key inputs and intermediate values across all scenarios

See tables 1, 2 and 4 in the executive summary for more detail on how the share price changes under different scenarios and sensitivities.

## 5 Scenario analysis

My scenarios align with the macro-economic outlook. Key inputs and intermediate variables change depending on the performance of the economy.

### 5.1 Base

The base is the economy continues to perform. There is speculation about an economic slowdown / recession on the horizon. Global growth stabilises and continues to pick up in the event horizon.

### 5.2 Pessimistic

This scenario explores a full blown recession as extreme as the global financial crisis. This is to play into the speculation a recession will happen in the next year. The 10 year long term swap rates would continue to stay low. The market return will plummet. The market return, therefore market risk premium will be at a low as the economy will have to climb out of another recession. This was considered by calculating the annualised return of the NZX 50 between 1/10/06 and 1/10/16. Subsequently, many of the intermediate variables and final values change (table 5). Revenue growth is scaled down by the same proportion as the market return to reflect this downturn. The valuations under this scenario are considerably higher. This is due to a significantly lower weighted average cost of capital. Security (equity and debt) holders require less of a return as the opportunity cost in other investments is lower caused by recession.

### 5.3 Optimistic

This scenario explores avoiding an economic downturn or recession entirely and the economy continues to have the same growth trajectory as the last 10 year. The 10 year long term swap rates would continue to rise to the maximum over the last year. The market return will increase. The market return, therefore market risk premium will be at a high as the economy will continue to climb. This was considered by calculating the annualised return of the NZX 50 between 1/3/09 and 1/3/19. Subsequently, many of the intermediate variables and final values change (table 5). Revenue growth is scaled up by the same proportion as the market return to reflect the continued upturn.

Refer to the sensitivity analysis in the appendix for valuation implications.





[Yahoo, 2019] Yahoo (2019). Yahoo finance. <https://nz.finance.yahoo.com>.