

1. Introduction

Anheuser-Busch InBev (AB InBev) is an American-Belgium brewing company, which became the world's largest brewer after undertaking Anheuser-Busch Companies, LLC in 2008 and owns many well-known global brands, i.e., Budweiser, Stella Artois, Corona Extra. As a customer staple industrial, AB InBev also invested in the non-alcoholic beverage and is publicly listed on the Euronext Brussels as ABI¹ and New York Stock Exchange as BUD². In the last few years, AB InBev's overall financial situation fell remarkably due to the pandemic of coronavirus, but it seems a signal of recovery³ which will be described in the following unit. In this report, cashflows for 5 projects of investment will be determined using some financial tools such as Net Present Value (NPV), where the discount rate of the firm will be estimated by using the Weighted Average Cost of Capital (WACC), material in AB InBev's financial statement and annual reports, and historical market index.

2. The Nature of the Five Proposed Investments

Table 1 in appendix A is the forecast for 5 projects that needed to be considered in order to invest and expect the return in 5 years period. Projects A and E have a constant cash flow. After the spread of the Covid-19 situation, this forecast cannot be assumed realistically. Project B has a gradually increasing trend which can be attractive to the shareholder. Project D has the highest investment and moderate return in the first three years and the greatest expected income in the last two years while project C has a fluctuated forecast and falls at the end of the project which appears to be risky.

According to AB InBev's report third quarter⁴, the total profit after taxes deduction of 9 months of operation was \$4,299 million (£3,855 million), which was 11.78% increased from those in 2021. And the organic growth of total revenue is 11.5%. This is the effect of the recovery from the coronavirus disease pandemic.

¹ <https://live.euronext.com/en/product/indices/BE0389557050-XBRU/bel-20-gr/bel2i/quotes>

² <https://www.marketwatch.com/investing/stock/bud>

³ https://www.ab-inbev.com/assets/presentations/Annual-Report/220321_FULL_EN-Annual%20Report.pdf

⁴ <https://www.ab-inbev.com/investors/document-search/>

3. Capital Budgeting Techniques

Financial investment plays a vital role in financial decision-making. The capital budgeting appraisal methods for investment evaluation provide the firm with the consideration of which whether they need to accept or reject the investment proposal. Commonly applied methods that used in this report are Payback Period (PP), Average Rate of Return (ARR) which are non-discounting methods, and Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI) which are discounting methods⁵. Where NPV is a technique that provides the difference between an investment's market value and the project's initial investment, which is the most realistic assumption due to the present values of each cash flow being calculated using the estimated discount rate of the company⁶.

4. Models Used for the Discount Rate Estimation

As the business consists of its assets, its liabilities, and the firm's equity, funds are raised from both equity and debt investor and used to generate returns⁵. As the consequence, these investors are then taking a risk by trusting that the business will spend their money sufficiently. And the cost to capital is determined by the estimated return of the market value of equity and of debt. The total weight of these values is called the Weight Average Cost of Capital (WACC) which is the primary model used to estimate the discount rate or required rate of return of the firm, which can be illustrated by the following mathematical formula.

$$WACC = K_E \left(\frac{E}{V} \right) + K_D \left(\frac{D}{V} \right)$$

where: K_E is the cost of equity: The return that equity investors require on their investment.

K_D is the cost of debt: The return that lenders require on the firm's debt.

E is the market value of the firm's equity

D is the market value of the firm's debt

V is the combined market value of the equity and debt = $E + D$

There are several techniques used for determining the cost of equity (KE) which play the main part in WACC calculation among all variables. In this report, 2 models will be applied to estimate a

⁵ Clacher, I., Hillier, D., Ross, S. A. (2017). Fundamentals of Corporate Finance. United Kingdom: McGraw-Hill Education.

⁶ <https://www.investopedia.com/ask/answers/032615/what-formula-calculating-net-present-value-npv.asp>

return on equity which are the Capital Asset Pricing Model (CAPM) and the Gordon Constant Dividend Model.

As Gordon's dividend growth method will be used, the history of dividends per share was explored by AB InBev's annual report⁷.

Table 4.1: Dividend per share from 2018 to 2022.

	2018	2019	2020	2021	2022
Dividend per share (USD)	2.01	1.15	0.603	0.48	0.53

It can be found that the dividend per share was reasonably dropped from 2020 due to the pandemic of coronavirus disease, and in 2022, which is the dividend from the profit gained in 2021, had a small raise because of the recovery of the world's market. Therefore, this report will use the USD currency as the basis, and the growth rate will be based on the financial year 2021/2022 to introduce a new standard.

i. Capital Asset Pricing Model (CAPM)

From the knowledge of security market line (SML), which is the line that is used to describe the relationship between systematic risk and expected return in financial markets⁸. The graph is plotted on the expected return, $E(R)$, and beta, β , in which the slope is the risk premium, and the interception of expected return is the risk-free rate. In terms of the required rate of return from investments, i.e., the equity can be written as an equation below. This result is called Capital Asset Pricing Model (CAPM).

The expected return from the cost of equity, K_E , is then:

$$K_E = R_f + \beta[E(R_M) - R_f]$$

where: R_f is the risk-free rate of return, the reward for merely waiting for money without taking any risk.

⁷ https://www.ab-inbev.com/assets/presentations/Annual-Report/220321_FULL_EN-Annual%20Report.pdf

⁸ Clacher, I., Hillier, D., Ross, S. A. (2017). Fundamentals of Corporate Finance. United Kingdom: McGraw-Hill Education.

$E(R_M)$ is the expected market return is the return the investor would expect to receive from a broad stock market indicator.

β is the amount of systematic risk present in particularly risky asset relative to that in an average risky asset.

The difference between the expected return on a risky investment (market return) and the certain return on a risk-free investment, the term of $E(R_M) - R_f$ can be called a risk premium, which means this component is the reward the market offers for bearing an amount of systematic risk in addition to waiting.

AB InBev (BUD) is mainly listed on New York Stock Exchange (NYSE), thus the market that has been taken into consideration is in the US, which is S&P500. The United States Federal Government's FY starts on October 1 and ends on September 30⁹. The history of BUD and S&P 500 index and price will be considered from October 1, 2017, to October 1, 2022. And the $E(R_M)$ can be estimated by the growth rate of the S&P 500 price¹⁰.

Table 4.2: The calculation of the expected market return of the S&P 500.

Year	Opening (USD)	Closing (USD)	E(R _M)
21/22	4,605.38	3,871.98	-15.925%
20/21	3,269.96	4,605.38	40.839%
19/20	2,575.26	3,269.96	26.976%
18/19	2,711.74	2,575.26	-5.033%
17/18	3,037.56	2,711.74	-10.726%
Average			7.226%

With a timeframe of a 5-year period, the treasury rate or risk-free return in the US is the yield received for investing in a US government-issued treasury security that has a maturity of 5 years. The rate of risk-free return (R_f) over the last five years is at 3.57% in December 2022.

For the last material for CAPM, a Beta (β) coefficient. From the knowledge of SML, Beta represents the slope of the line through a regression of an individual stock's return against those of the market as a whole. By taking the information of BUD¹¹ in the same period as S&P 500, the calculation reveals a Beta coefficient of 1.22 approximately which is close to the beta value

⁹<https://www.usa.gov/budget#:~:text=The%20federal%20government's%20fiscal%20year,September%2030%20of%20the%20next.>

¹⁰ <https://uk.investing.com/indices/us-spx-500-historical-data>

¹¹ <https://uk.investing.com/equities/anheuser-busch-exch>

provided in the investing system¹², which means that the average asset of AB InBev in the US market has around 27% as much systematic risk.

Table 4.3: Values of three components for CAPM.

R_f	3.57%
$E(R_M)$	7.226%
β_E	1.2705
K_E (CAPM)	8.215%

By taking everything into account, the cost of equity determined by CAPM is then 8.215%.

ii. Gordon Constant Dividend Model.

The dividend is the one parameter that implies how well the firm's profitability is¹³. The dividend growth model determines the current share price as its dividend next period divided by the discount rate less the dividend growth rate, which can be simply written as:

$$K_E = \left(\frac{D_1}{P_0} \right) + g$$

where: D_1 is the next period's projected dividend per share

P_0 is the initial share price

g is the constant rate of the firm's dividend grow

where
$$g = \left(\frac{\text{Dividend per Share in year } t}{\text{Dividend per Share at initial}} \right)^{1/t} - 1$$

Table 4.4: Dividend Growth Rate, and Cost of Equity Estimation.

	2021	2022
Dividend per share (DPS_t)	\$ 0.48	\$ 0.53
Initial share price (P_0)	\$ 51.91M	\$ 61.22M
DPS_t/P_0	0.0092	0.0086
Growth rate (g)		5.18%
Cost of Equity (K_E)		6.035%

¹² <https://www.zacks.com/stock/chart/BUD/fundamental/beta>

¹³ <https://www.investopedia.com/terms/g/gordongrowthmodel.asp>

As mentioned previously, the growth of AB InBev has been recovered in the financial year of 2021/2022, according to table 4.4, therefore the growth rate is 5.18%, and the ratio of dividend per share growth to the share price at the beginning of the financial year is 0.0086. The cost of equity determined by Gordon's constant dividend growth model is the summation of these 2 values, which provided an expected rate of return at 6.035%, which is not noticeably different from CAPM technique.

Table 4.5: The Estimated Costs of Equity Determined by 2 models.

	K_E
CAPM	8.125%
Gordon's model	6.035%

After various costs of equity are estimated, which is the key role parameter, the rest of the materials for the expected discount rate (WACC) can be determined by the information from AB InBev's financial statement.

Table 4.6: WACC Calculation.

Equity	21/22
Total Volume of share, Million	87.07
Share price (USD), Million	\$ 61.22
Total Market Value of Equity, E	\$ 5,330.43
Cost of Equity, $CAPM K_E$	8.215%
Cost of Equity, $Gordon's K_E$	6.035%
Debt	
Interest Payment	\$ 3,987.00
Interest-bearing Loans and Borrowings	
Non-current Liabilities	\$ 87,369.00
Current Liabilities	\$ 1,408.00
Total Market Value of Debt, D	\$ 88,777.00
Cost of Debt, K_D	4.49%

Market Value	
Total Market Value, $V (= E+D)$	\$ 94,107.43
Weight of Equity, E/V	0.0566
Weight of Debt, D/V	0.9434
WACC (CAPM)	10.98%
WACC (Gordon's)	8.07%

The table results in 2 expected discount rates which will be used for the Net Present Value and Profitability technique to make a comparison between each project.

5. Discussion and Recommendation

The following table illustrates calculated financial methods for investment decision-making. After applying two discount rates which are the results from WACC techniques, NPV and PI will be determined and appeared separately based on different models in the cost of equity estimation.

Table 5.1: NPVs (in £000), IRR, Payback Period, and Profitability Indexes of five projects from the estimated discount rate.

Projects	NPV (CAPM)	NPV (Gordon's)	IRR	Payback Period	Profitability Index (CAPM)	Profitability Index (Gordon's)
A	£ 76,592.69	£ 122,684.48	16.74%	3.21 years	1.1487	1.2382
B	£ 53,464.46	£ 90,200.23	16.02%	3.62 years	1.1550	1.2615
C	£ 30,503.92	£ 62,290.86	14.13%	3.23 years	1.0713	1.1455
D	£ 120,678.51	£ 176,171.41	18.90%	3.34 years	1.2255	1.3291
E	£ 12,309.07	£ 33,914.60	12.81%	3.53 years	1.0465	1.1280

The forecast of all projects provided positive amounts of net present values; therefore, every project can be accepted with these rates for return. But it was witnessed that the NPV of project D has the highest NPV values of £120,678,510 and £176,171,410. As well as the internal rate of return (IRR) at 18.90%, which is the highest among the others, and considerably higher than the WACC of 10.98% and 8.07% from both models. This means that investing in project D will

provide the greatest return compared to the cost even though it will take 3 years and 4 months for the breaking point, which is a longer time compared to projects A and C. The profitability indexes also prove that the return has much ability to provide profit to the investment, which is 22.55% and 32.91% to the capital of £535,250,000. Therefore, project D should be selected as the best alternative.

6. Conclusion

In this report, the decision-making process has been presented regarding the five projects under consideration. Based on limitation of taxation, the WACC used is not consumed the term of tax, and assumption of the pandemic of coronavirus disease, growth rate is then consider starting from 2021, AB InBev have had a remarkably good step of recovery which revealed in the statement of financial by applying investment appraisal techniques.

Appendix A

Table 2.1: The Forecast Future Net After Tax Cash-flows (in £000) are as follows:

Projects	Initial Investment	End of Year 1	End of Year 2	End of Year 3	End of Year 4	End of Year 5
A	- 515,000	160,000	160,000	160,000	160,000	160,000
B	- 345,000	63,000	79,000	115,000	143,000	167,000
C	- 428,000	172,000	172,000	128,000	105,000	98,000
D	- 535,250	153,000	153,000	153,000	225,000	225,000
E	- 265,000	75,000	75,000	75,000	75,000	75,000

Appendix B

Link to access the calculation spreadsheet:

<https://docs.google.com/spreadsheets/d/1bHt98uWhianj1jggQ6l01exwCvGfuf97/edit?usp=sharing&ouid=111754606619072924032&rtpof=true&sd=true>