



**MBAC 813 – Financial Management
Individual Assignment
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38/40=95%

By submitting this document, I declare that this submission is my own work.



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Question 1 15 marks

	Botswana	SA
Inflation rate:	3%	4%
Spot rate	1.3	1
Spot rate 1/x format	1	0.76923
Treasury bond interest	4%	5%
WACC – SA	14%	
Shareholders fund (million)	R 20.00	
Long term debt (million)	R 4.00	

CF = Cash Flow; n = year; r_f = interest rate foreign country; r_h = interest rate home country

Equation 1: Forward exchange rate (exchange rate parity) (Brigham & Ehrhardt, 2017)

$$\text{Forward exchange rate}(fer) = \text{spot exchange rate}(ser) \times \left(\frac{1 + r_h}{1 + r_f} \right)^n$$

Equation 2: Discounted Cash Flow (Brigham & Ehrhardt, 2017)

$$DCF = \frac{CF_t}{(1 + WACC)^t}$$

Equation 3: Net Present Value (Brigham & Ehrhardt, 2017)

$$NPV = \sum_{t=0}^n DCF_t = \sum_{t=0}^n \frac{CF_t}{(1 + WACC)^t}$$

Equation 4: NPV foreign exchange conversion (Brigham & Ehrhardt, 2017)

$$NPV_{ZAR} = \frac{NPV_{BWP}}{\text{spot exchange rate}}$$

1.1 Rand net present value – discounting annual cash flows in Rands

Year	0	1	2	3	4
(1) - Cash inflow (Pm):	-P 9.00	P 3.50	P 5.90	P 5.00	P 7.00
Forward exchange rate:					
(2) – Pula per ZAR: Using eq 1	0.7692	0.776 6	0.784 1	0.791 6	0.799 2
(3) - CF (Rm): (3)/(2)	-R6.92	R2.72	R4.63	R3.96	R5.59
(4) – DCF @ WACC = 14% (Rm): using eq 2	-R6.92	R2.38	R3.56	R2.67	R3.31
(5) - NPV (Rm): Using eq 3	R5.0052				

1.2 Rand net present value – discounting annual cash flows in Pulas

$$r_{RFS A} = \text{Risk free rate SA}; r_{RFBW} = \text{Risk free rate BW}; r_{RP} = \text{Risk premium}$$

Equation 5: (Wiley *et al.*, 2016)

$$(1 + r_{RFS_A})x(1 + r_{RP}) = 1 + WACC_{SA}$$

Equation 6: (Wiley *et al.*, 2016)

$$(1 + r_{RFBW})x(1 + r_{RP}) = 1 + WACC_{BW}$$

Equation 5 is used to find the risk implicit (r_{RP}) in the WACC of South Africa. This risk is then applied to the risk free rate of Botswana to calculate the WACC in Botswana using equation 6.

Risk premium implicit in WACC -SA: Using eq 5	8.5714%
WACC adjusted for Botswana: Using eq 6	12.9143%

Year	0	1	2	3	4
(1) - Cash inflow (milion Pulas):	-P 9.00	P 3.50	P 5.90	5.00	7.00
(2) – DCF @ WACC = 12.9143%: using eq 2	-P 9.00	P 3.10	P 4.63	3.47	4.31
(3) - NPV (Pm)Using eq 3	P 6.51				
(4) - NPV (Rm) Using eq 4	R 5.0052				

The NPV calculated using the local currency approach of R5.0052m is the same as the NPV calculated using the foreign currency approach. This supports the “law of one price” that states in competitive markets without any perfections, assets have the same value when adjusted for the respective currencies.

Question 2

2.1 Weighted Average Cost of Capital (WACC) and how it applies to BMW

The objective of any company is to maximise the shareholder value. Management is responsible to ensure sustainable growth and meeting the return required by shareholders through making informed financial decisions (Modigliani & Miller, 1958). 1 mark Companies undertake projects that aim to secure, increase and develop market share. All of which require capital investment. 1mark One of the most frequently used methods to ensure value is created, is evaluating a project's expected and actual performance by comparing its return to the cost of capital. Generally this is either calculating the NPV by discounting cash flows with the cost of capital or comparing the calculated ROI with the cost capital (Melicher & Norton, 2013). Cost of capital is the expected rate of return from participants in the market on an investment in order to invest funds in it (Wiley *et al.*, 2016). 1 mark Also described as the opportunity cost of not investing in the second best alternative of similar risk level. It is expressed as an annual percentage return of invested funds. Market is used to describe the pool of reasonable investors willing to invest funds in an investment (Grabowski & Pratt, 2014).

Capital consist out of three components (Melicher & Norton, 2013): Debt (long and short term), preferred equity (preferred stock) and common equity (retained earnings and common stock).

Companies make up their total capital using a combination of the above mentioned components of capital in different ratios. This is referred to as a company's capital structure. Weighted Average Cost of Capital (WACC) is an accurate measurement on the average return required on the combination of all the capital components used by the company. It is the sum of the cost of each component multiplied by its weight as a ratio of total capital (Melicher & Norton, 2013). The formula is shown below:

$$WACC = w_d r_d (1 - T) + w_{std} r_{std} (1 - T) + w_{ps} r_{ps} + w_s r_s$$

T = Company's tax rate; r_d ; r_{std} = Interest on long and short term debt ;

r_s = Rate of return required on common stock;

r_{ps} = Rate of return required on preferred stock

w_d, w_{std}, w_{ps} and w_s = weights of respective components

Inflation rates influences all components of capital. Return required on debt includes inflation and investors in stock also expect return greater than inflation. All investors expect a return greater than their reducing purchasing power (Grabowski & Pratt, 2014). Inflation rates are based on factors like demand, a country's fiscal and monetary policy and political climate (Melicher & Norton, 2013). These are just a few factors to illustrate that companies don't have any control over the inflation rates of a country (Brigham & Ehrhardt, 2017). These rates differ between countries and BMW should adjust their WACC for international operations. The effect of inflation is shown through the respective risk free rates: of Botswana and South Africa in question 1.

- $r_{RFBW} < r_{RFSa}$, r_{RF} includes inflation and real interest rates are the same in both countries. Thus inflation is higher in South Africa.
- WACC to discount cash flow in Pula (12.91%) is lower than the WACC used to discount cash flow in Rand (14%)
- The Rand depreciating against the Pula (P/R = 0.7692 to P/R = 0.7992)

The long and short term debt's contribution to the WACC is calculated after tax is deducted. This is due to tax only being calculated after the interest on debt has been paid. This effectively lowers the cost of debt and provides a tax shield (Grabowski & Pratt, 2014). This means the corporate tax rate of a country affect the WACC of a company. The higher the tax rate, the lower the debt component of the WACC (Melicher & Norton, 2013). Like interest rates, BMW also have no control over tax rates. The tax rate in Botswana is 22%, lower than the 28% in South Africa. The unweighted debt component using $r_d(1 - T)$ and the risk free rate is 3.12% and 3.6% for Botswana and South Africa respectively. This is a difference of 0.48% and not 1% like the difference between risk free rates. The lower tax rate in Botswana reduces the effect of the lower cost of debt on the WACC, but it's still significant enough for BMW to adjust the WACC for international operations. As in case of Botswana operation where the WACC needs to be lowered to discount cash flows in Pula.

As mentioned previously, companies use a different mixture of capital components. This means they have total control over their capital structure which ultimately influences the WACC. So although debt has a lower cost, it does not always reduce the WACC. Debt has lower risk and cost then the other components, but increasing debt also increases the default risk. This is not risk that increases. Since interest on debt is paid before dividends, an increase in interest payments effect the expected payments to stock holders and increases their risk resulting in them requiring a greater

return on their investment (Drake & Fabozzi, 2010). The optimal capital structure is achieved when WACC is at its lowest. Companies generally tend to generate capital in the following order (Drake & Fabozzi, 2010):

1. Retained earnings (return required is the same as common stock)
2. Debt
3. Preferred stock
4. Common stock

BMW's current debt-to-equity ratio is 0.2 as shown below. This means they don't use excessive amounts of debt to fund their projects and have a low default risk. They should try and fund the project using retained earnings and in this is not suffice debt and stock must be used in such a way that this ratio stays or more or less the same while still maintaining constant dividend payments. This mitigates the possibility of fluctuation in risk and ultimately the WACC when expanding operation into Botswana.

1 mark

$$\text{Debt-to-equity ratio} = \frac{\text{Total debt}}{\text{Total stockholders' equity}} = \frac{4}{20} = 0.2$$

The risk associated with a country has a large influence on the WACC of a company since it affects all the capital components and is based on a variety of factors such as political climate, economic conditions etc. Companies don't have an influence on this risk, but should adjust their WACC to include it when moving operations into a particular country (Wiley *et al.*, 2016). In the case with BMW, the real interest rates of the two countries are the same which indicates similar risk levels. 1 mark

Although the exchange rate of 1.3 Pula per Rand is indicative of the South African economy being stronger than that of Botswana, the lower risk free rate of Botswana points to the current economic conditions being better in Botswana. Thus, as shown in question 1, the WACC of 14% for discounting cash flow in Pula's should be adjusted to 12.91% to discount the cash flows in Pula's as a result of the difference in the risk free rate. Thus adheres to the general trend for companies' to adjust their WACC for international operations. 1 mark

2.2 The risks faced by BMW when it moves into an international market and how it might manage these risks well done

Expanding business operation over borders involves more than the transfer of easily quantifiable resources like funds, technology, minerals, goods and services, but also includes less quantifiable resources such as skills and knowledge (Moosa, 2002). Ideally, a company would want to be able to transfer all these resources over borders efficiently and cost effectively without any risk or interference from governments, but it is not an ideal world and operations include numerous risk and are, in fact, regulated by governments.

Botswana will not allow a BMW to do business within its borders when the cost they bear are greater than the benefit they receive. Nor will South Africa freely allow the flow of resources out of the country. They have laws and regulations to ensure that this is achieved (Moosa, 2002). These are not often changed, but still holds a risk for BMW as they have to be compliant to local and Botswana requirements. This risk can be mitigated by thorough research and planning.

Commented [21]: This is very good, but you missed three key assumptions about WACC that make it valid for use in investment appraisal. You also missed key arguments against the use of Wacc. In the last part you attempted to allude to them, but the argument was weak, although you talked a bit to two of the three points. This is good though

Legal and regulatory requirements:

Both the South African Reserve Bank (SARB) and the Bank of Botswana have policies in place to regulate the inward and outward movement of funds. BMW have to research these requirements to be informed on the restriction of moving funds from South Africa for investment purposes and moving profits back to compensate shareholders. The R9m initial investment fall within the R1bn restriction of the SARB, but moving profits back will be more difficult as Botswana will want to benefit from the business. A possible solution to this is the use of transfer pricing (Adam, 2008). BMW in South Africa could inflate the price of resources transferred to Botswana, effectively increasing local profits and decreasing foreign profits effectively moving profits between the countries. This must however be monitored and BMW will have to stay within regulations.

In order for BMW to operate in Botswana, they will have to comply with the local labour and company laws. Labour laws include requirements on labour related issues like working conditions, training, working hours and minimum compensation. Where company law governs the formation, operation, funding and death of companies. The laws may differ in Botswana and BMW should consult professionals to gather information and assist in planning to ensure compliance and mutual benefits for themselves and Botswana. During this process, BMW should also investigate their environmental obligation as required by local laws and include the cost thereof in their cash flows.

Apart from the legal requirements, BMW's expansion of operations into Botswana exposes them to the risk associated with doing business in international markets. These are generally classified as political, financial or economical risks. 2marks

Political risks:

These risks are those associated with political climate of a country and the effects thereof. It includes risks such as racial tension, government instability, corruption, expropriation of private investments, war, tax adjustments and changes in laws and regulations (Wiley *et al.*, 2016). BMW's move into Botswana exposes them to these risks, all of which affects the value of their investment. These types of risks are difficult to foresee, but steps can be taken to mitigate their effect and some of them occurring the chance of occurring.

Racial/cultural tension, corruption and civil unrest are risks associated with doing business in the majority of African countries. This is no different for South Africa and Botswana. BMW is more than familiar with the African cultures, political uncertainty and corruption in South Africa. This knowledge will be beneficial in Botswana. They must use it to manage their diverse work force in a non-confrontational manner that promotes inclusivity. They must engage with communities, provide training and involve them in the operation for them to benefit from the investment. Most of these are enforced by laws and regulations which BMW must comply with. To mitigate the effect of these risks occurring, it will be of utmost importance for BMW to act.

Measures can be taken by BMW to limit the aftermath of these risks occurring. For example, insurance can be taken out against expropriation of private investments or damaged caused by civil unrest. [2 marks](#)

Financial risks:

Financial risks are money related issue. This includes restrictions, tax rates, currency volatility and losses due to exchange controls. All the profit made by BMW will be taxed in Botswana. Their current corporate tax rate is 22%. This is lower than the 28% corporate tax in South Africa. As stated in the previous chapter, BMW can use transfer pricing to move profits in such a manner that they benefit from this lower tax rate.

This investment exposes BMW to currency volatility and exchange controls. It is important for BMW to determine the exchange regulations beforehand to plan accordingly to ensure compliance. There are usually cost involved in foreign exchange which should be calculated in advance and be included in the cash flows. The exchange rate between currencies isn't constant and can change unexpectedly. Methods exist to include this risk in financial analysis based on the current economic conditions in the two countries. This is illustrated in question one. In the first method the risk free rate is used to calculate future exchange rates to convert cash flows from Pula's to Rands and in the second method it is used to adjust the WACC to discount cash flows in Pula's (Wiley *et al.*, 2016). These are all just estimates and can differ from actual rates. BMW can hedge the two currencies to protect itself from adverse currency movements using financial instruments such as options and futures (Tennent, 2008). [2 marks](#)

Economic risks:

Economic risks are risk associated with the economy of a company. It includes the volatility of the economy, monetary and fiscal policies, regulations and debt to GDP ratios. The inflation rate of a country is a good indication of the volatility of a country's economy. Botswana has a lower inflation rate than South Africa indicating a less volatile economy. In 2019 Botswana's debt to GDP ratio was 23%, lower than South Africa's at 62.2% (TradingEconomics, 2019).

This is an indication of lower economical risks in Botswana since they are less likely to (Wiley *et al.*, 2016):

- default on their loans less
- change monetary policies (e.g. increase money supply)
- change fiscal policies (e.g. tax changes , changes in government spending)

Taking into consideration the above mentioned, BMW overall face a lower risk in Botswana than in South Africa. They still have to take precautionary steps to mitigate the likelihood of these risks occurring and/or reduce the severity of loss in the event of them occurring (Drake & Fabozzi, 2010). [2 marks](#)

2.3 The methods of financing international operations and the factors that the company needs to consider before deciding to borrowing in Euro debt well done

As mentioned in section 2.1, there are numerous financing methods available to BMW to fund the investment in Botswana. To limit the effect the cost of capital, they should first try to use retained earnings 1mark, then debt 1mark and lastly equity from shareholders (Drake & Fabozzi, 2010). Debt is an attractive source of capital since:

- cost of debt is lower than the cost equity (debt requires surety and interest is paid before dividends) (Drake & Fabozzi, 2010)
- Debt has tax benefits (Grabowski & Pratt, 2014)

BMW can undertake debt locally, in Botswana or in any other foreign country. The risk free rate in South Africa is 5% and 4% in Botswana. 1 mark This difference is not significant enough for BMW to benefit from taking into consideration the financial risks involved in using Botswana debt and costs to mitigate these risks (Melicher & Norton, 2013). However, the 3% rate offered in Europe is enticing enough for BMW to consider using Europe debt. 1mark This debt can be obtained from, but not limited to, commercial banks or development financial institutions (DFI) that are part of the European Development Finance Institutions (EDFI) (Krugman *et al.*, 2017). 1mark BMW however, has to consider the following factors before underrating any European debt:

- **Debt-to-equity ratio of BMW:** As mentioned in section 2.1., BMW should aim to keep their leverage constant and not over expose them on debt. Debt increases the default risk and interest payments have to be made in good and in bad times before dividends are paid.
- **WACC:** The lower interest rate in Europe will affect BMW's WACC. BMW will have to include this in the WACC as discount rate to evaluate the project, but also keep in mind the added risks associated with foreign debt (Wiley *et al.*, 2016).
- **Exchange rate:** Borrowing in Europe exposes BMW to exchange rate risks since the Euros will need to be converted to Pulas. If they use European debt, BMW will be exposed to currency risks on the EUR/Pula exchange and the ZAR/Pula. The European rate of 3% is lower than the 4% in Botswana, thus the Pula will depreciate against the Euro over time (Wiley *et al.*, 2016). 1 mark BMW must use equation 1 to calculate the forward exchange rate of EUR/Pula and then use these rates to calculate the projected interest payments over the period of the loan. These adjusted payments should be included in evaluating this finance method (Wiley *et al.*, 2016). 1mark BMW also has the option to hedge the Euro by using financial instruments such as forward or option contracts (Melicher & Norton, 2013). The cost of hedging should be included in the evaluation of this finance method.
- **Interest cover:** BMW should look at its ability to make interest payments from pre-tax profits. Interest cover is one method, this is the number of times a firm can pay interest. $Interest\ cover = Operating\ income / interest$ (Tennent,

2008). If this value is lower than 3, BMW should not consider debt as a financing method. 1 mark

- **Bank charges:** There will be bank cost involved in converting currencies and making payments to Europe (Krugman *et al.*, 2017). These cost should be included in the evaluation of this finance method. 1mark

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