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SAINSBURY'S'S FINANCIAL PERFORMANCE ANALYSIS

Sainsbury's

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PART 1

1 Sainsbury's company

Sainsbury's it was founded in 1869 by Jhon James and Mary Ann Sainsbury. This company, At the beginning had some store market in 1882 in some part of the UK that offered an high-quality of products. the company become one of the most important food-retailer in the UK by having 16,0% of share in the grocery sector. Also, Sainsbury's has 3 important division: Sainsbury's supermarket, Sainsbury' bank and Sainsbury's Argos. From 1973, when the company become more successful, Sainsbury's was the main company more profitable in the grocery sector by having an excellent management. In April 2016 the company has taken over the shares from Argos chain which has given to Sainsbury's the label of the best and larger merchandise in the UK. Sainsbury's has a very strong multichannel where the customers can buy the product. in fact, it counts 2.300 supermarket around the UK by considering the Argos stores as well. The most main competitors are Morrison, Aldi UK, and Tesco. Between 2016 and 2017, the company has created a new multichannel strategy through the development of new online platform where the customer can order the products online in London area. On the 1 February 2018 , Sainsbury's has done a deal of 60£ million by purchasing nectar from Aimia, which gave the full control regard the data from the loyalty scheme to Sainsbury's Argos. Furthermore, in February 2018 the Sainsbury's it was purchased from the Qatar investment authority, which it has purchased 21.99% of the company by entering on the London stock Exchange on the FTSE 100 index. Sainsbury's has 753 supermarkets, 362 convenience stores apart from the online platform. As far as Argos Concerned, it has 386 Argos stores and 573 standalone shops In 2020, the covid 19 Pandemic has disrupted the society but has had a huge impact on the grocery's sector. In particular, Sainsbury's has doubled both the sales on his stores and the online sales thanks to the coronavirus lockdown. The sales is jumped by 8.5% during the period of lockdown from march 2019 and June 2020. In particular in the first quarter the sales were growing about 10.5% by having a huge quantity of orders online about 650.000. The company is focusing mostly to create, an efficient online platform sales to increase the profitability more than before and to deliver the orders to customers as quick as possible.

PART 2

2 CALCULATION OF THE FINANCIAL PERFORMANCE

TAB. 1

SAINSBURY'S	2016	2017	2018	2019	2020	MORRISON 2019
Sales	23.506	26.224	28.456	29.007	28.993	17.536
Gross profit	1.456	1.634	1.882	2.007	2.294	629
Operating profit	707	642	518	312	986	521
Net profit	471	377	309	319	437	348
Fixed Asset	9.764	10.006	9.898	9.708	8.911	7.147
Total equity	6365	6872	7.411	8.456	7.773	4.541
Total Asset	16.973	19.737	22.001	23.541	27.937	10.920
Total Debt	2.413	2.211	2.240	1.782	1.296	1.345
Current liability	6.724	8.573	10.302	11.417	12.047	3.396
Current assets	4.444	6.322	7.866	7.589	7.586	1.322
Cash	1.143	1.083	1.730	1.121	994	305
Inventory	968	1.775	1.810	1.929	1.732	660

Financial ratios

TAB. 2

SAINSBURY'S	2016	2017	2018	2019	2020	MORRISON 2019
Gross profit margin	$1.456/23.506=0,061$	$1634/26224=0,062$	$1882/28456=0,066$	$2007/29007=0,069$	$2294/28993=0,070$	$629/17536=0,035$
Operating profit margin	$707/23.506=0,030$	$642/26224=0,024$	$518/28456=0,018$	$312/29007=0,010$	$986/28993=0,034$	$521/17536=0,029$
Net Profit margin	$471/23.506=0,020$	$377/26224=0,013$	$309/28456=0,010$	$319/29007=0,011$	$437/28993=0,015$	$348/17536=0,0198$
Fixed asset turnover	$23.506/9.764=2,40$	$26224/10006=2,62$	$28456/9898=2,87$	$29007/9708=2,98$	$28993/8911=3,25$	$17536/7147=2,45$
Total asset turnover	$23.506/16.973=1,38$	$26224/19737=1,32$	$28456/22001=1,29$	$29007/23541=1,23$	$28993/27937=1,03$	$17536/10920=1,60$
Return on asset	$471/16.973=0,027$	$377/19737=0,019$	$309/22001=0,014$	$319/23541=0,013$	$437/27937=0,016$	$348/10920=0,031$

Return on equity	471/6365=0,073	377/6872=0,054	309/7411=0,041	319/8456=0,037	437/7773=0,056	348/4541=0,076
Debt to equity	2413/6365=0,37	2211/6872=0,32	2240/7411=0,30	1782/8456=0,21	1296/7773=0,16	1345/4541=0,296
Debt to capital Ratio	2413/6365+2413=0,25	2211/6872+2413=0,24	2240/7411+2240=0,23	1782/8456+1782=0,17	1296/7773+1296=0,14	1345/1345+4541=0,23
Current Ratio	4444/6724=0,66	6322/8573=0,73	7866/10302=0,76	7589/11417=0,66	7586/12047=0,63	1322/3396=0,39
Quick Ratio	4444-968/6724=0,51	6322-1775/8573=0,53	7866-1810/10302=0,58	7589-1929/11417=0,495	7586-994/12047=0,54	1322-660/3396=0,195
Cash Ratio	1143/6724=0,16	1083/8573=0,12	1730/10302=0,168	1121/11417=0,1	994/12047=0,08	305/3396=0,090

2.2 PROFITABILITY RATIO

the profitability ratio are measurements that are being used from investors, to assess whether a company can generate the right income, by considering: revenue, balance sheet , operating and shareholders' equity

Gross profit margin

The gross profit margin determines the profit that the company generate from the production's company goods by excluding other items such as overhead, taxes and interest on a debt (Paul M. Collier, 2015).

The gross profit margin reflects how successful a company's executive management team is generating revenue, considering the costs involved in producing their product or service. A higher profit margin ratio give an higher efficiency of core operations. Yet, meaning it can still cover operating expenses, fixed costs, dividend, depreciation. However, a low profit margin indicates an high cost of goods sold, which can be attributed to adverse purchasing policies, low selling prices, low sales and wrong sales promotion. The gross profit margin of Sainsbury's in the past years from 2016 to 2020 shows a steady growth, that's why the sales revenue have been increased and so the cost of goods remain at a constant percentage of sales. Moreover, in 2020, there is a slightly growth of gross profit that could be attributed to the covid 19 pandemic, which it has created a huge profit in a grocery's sector that is considered a key sector during the pandemic. Indeed, Sainsbury's quarterly sales jumps 8.5% as the lockdown doubles online revenue(etailgazette.co.uk).

Net profit margin

The net profit margin measures a percentage of profit of the amount that company earns per 1£ pound of sale i.e. how much of income, is generated as a percentage of revenue. In other words, the net profit margin assess, the current practices that are working and forecast profits, bases on

revenues. Furthermore, the net profit margin is useful to assess if a company's management is generating enough profit from its sales and whether the operating costs and overhead costs are being contained. The difference with the gross profit margin is that, it takes into account all expenses, costs and cash flow items.

From 2016 to 2018 the net profit margin decreases from 2% in 2016 to 1% at 2018. It means that in 2018, the company earn 0.10£ in net profit per 1£ of sale. This imply that a high purchase costs of goods could generate inadequate funds to cover expenses. When the cost of goods sold increases to the point that there are not enough funds left to support all expenses for the period, a net loss will occur. This imply that the higher the cost of goods sold, the lower the net profit margin becomes. However, in September 2020 the statement shows that there is an increase of net profit and considering that the net profit margin is 1.5% more than other years. It means that in account of the covid 19 pandemic, Sainsbury's has increased the revenues by a lot, through the high sales that occurred during the lockdown as the grocery's sector has been considered a key sector in this unprecedented time.

Operating profit margin

Unlike the net profit margin, the operating profit margin ratio-so called-EBIT- doesn't consider the financing cost as well as the taxes. So, it consider, just the company's core operations linked with the total revenues. This ratio is important for the investors because shows how much income the company is generating from operations and how much of revenue could be used, to cover the non-operating costs (Atrill, 2017). In other words, it doesn't consider interests, taxes, depreciation and amortization. In the case of Sainsbury's from 2016 to 2020 the operating profit ratio has the same trend of the net profit margin but, in this case, it calculate the profitability through the core operation without consider financing cost .

Return of Assets(ROA)

The return of assets indicate how profitability is the company considering its total assets. So, it demonstrates, how the company's management is efficient by using the assets and so, to generate revenues (Paul M. Collier, 2015). The higher is the ROA, more earning are doing the company on less investments. Sainsbury's present a return of asset that decrease till 2020. From 2016 to 2019, there is a huge decrease of the percentage. in 2016 the company has a 2.7 % it means that the company has generated 2.7% of net income upon every pound invested. However, from 2016 to 2017, the ratio went down by 0,8 %. It means the company has failed to produce revenue. from 2019 to 2020 the ratio increased of 0.2%.

Return of Equity(ROI)

the return of equity essentially indicates to analysist, how the company is efficient on generating a return of the investment, but , from the shareholders and not from the asset as calculated in the Return of assets. In this case, Sainsbury's present the same performance of the return of assets. From 2016 to 2020 there is a decrease of the Ratio. In 2016 the return of equity is 7.3% it means that the company is generating 7.3% of net income from the shareholder's equity. However, in 2017 decrease of 1.9%, it implies that the company has lost efficiency to generate profit. it could mean

that the company is mismanaging the shareholder's money i.e. the investor's money. From 2019 to 2020, the ratio has growth to 3.7% to 5.6% i.e. the company, in this case, is more efficient to use the stockholder's equity to generate net income.

2.3 EFFICIENCY RATIO

The efficiency ratio is used to assess the use of internally assets and liabilities of the company. Yet, the efficiency ratios are being used to analyse the company's performance on the short term and how the company uses its assets to generate income (Eugene F. Bringham., 2013).

The fixed asset turnover Ratio

The fixed asset turnover ratio is used to assess the operating performance of company. In other words, measure how the company generate net sales from fixed-asset investments such as property, plant and equipment. This ratio is useful to measure an approximate return of investment and how the company is utilizing their equipment to generate revenue.

From 2016 to 2020 there is an increase of the ratio from 2.40% in 2016 to 3.25% in 2020. This imply that that the company has a stable production and good inventory management. Furthermore, a high ratio it means that the company require less money for fixed assets and so, the company has more flexibility to spend on items that can improve the business. On the other hand, by having a high ratio, it means get back an higher return of investment that the company did.

The asset turnover Ratio

The total asset turnover ratio measures how the company uses the total assets to produce revenue or sales. The asset turnover ratio usually is higher for the grocery's companies, because this kind of sector produce a high volume of sales.

From 2016 the total asset turnover it was 1.38%. however, from 2016 to 2020 the total asset turnover went down at 1.03% in 2020, this may be indicate that there are problems of production or management problems as well as the lack of efficient to use the assets .In 2020 in particular in spite of covid 19 and the lockdown it was a huge demand of grocery from march to June. Indeed, online deliveries have increased from 7% to 17%, and the total sales grew 8.5%. (BBC, 2020)This imply that the company's delivery system is slow and so, there could be delays in getting the product to the customers and collecting the payment on time. Hence, the company have to invest in technologies to automate the order, billing and inventory system to increase sales and so, to increase the asset turnover ratio (efinancemanagement.com, 2019)

2.4 LEVERAGE RATIO

The leverage ratios measure how much capital the company generate in form of debt. In other word, these ratios refer the amount of equity and debt to finance the operations and know the amount of debt that the companies held back to pay its debts as they come due (Paul M. Collier, 2015).

Debt to equity ratio

The debt to equity ratio measure, if the companies are able to repay its obligations. yet, it compares whether the equity's shareholder is able to cover all debts, even if there is an downturn .If the ratio is high it means that the company is being financed by creditors and not with its financial resources and could be dangerous going forward. the ratio give an optimal result if is about 1 ,it means that the liabilities = equity (Atrill, 2017). Whether, the company has an high debt to ratio this implies, it doesn't generate fairly revenue to satisfy its debt obligations. On the other hand, if the ratio presents a low number this signals that the company is stable with a lower proportion of debt. However, if it's too low, it mean that the company is over-relying on equity to finance the business .In addition, the investors as well as existing stockholders, prefer an high ratio, because the company is borrowing at an after-tax interest rate that is lower than the company can earn on its operations (William M., 1989). In the case of Sainsbury's the ratio is great in each 5 years. However, from 2016 to 2020 the ratio decreased by becoming too low of 0.16 this imply that in 2020 the grocery's sector had had a high number of revenue because of the high demand of product due to Covid 19 pandemic. Furthermore, whether the ratio is too low, it mean that the company should be take advantage of profit, so the company should invest more, for example, in technology in its stores as well as may hire more staff, so that to improve the financial performance more than the other players on the market.

Debt to capital ratio

The debt to capital ratio measure the amount of debt that company uses to finance their operation, by comparing it with its capital. If the ratio is higher it means the company is risky i.e. the company is funded more from debt than equity. On the contrary, whether the ratio is less 1 it means that the company is healthy and have a great financial structure. In other word, the company has more assets than liability and can deal with its obligations by selling its assets if needed. In the Sainsbury's case the debt to capital ratio is low in each year from 2016 to 2020 this indicate that the company has a financial structure healthy and so a lower debt. The mostly in 2020 in which the ratio is just 0. 14 or 14% in account of the higher revenue during the event of lockdown, as the grocery's sector is considered a key sector during this financial crisis provoked by Covid 19.

2.5 LIQUIDITY RATIO

The liquidity ratio, take into account the debtor's ability to repay the current debt with own capital without external capital. In other word, this kind of ratios indicate whether the company's assets, are able to pay off the company's obligation on the due date.

Current Ratio(working capital)

The current Ratio measure how the business, is able to pay off its short- term debt which are due within a year. It calculates, how the company can maximize its current assets, so that can pay off debt and payables. Also, in this case, if the ratio is more than 1, it means that the company can easily settle its short-term debts due. On the contrary, whether the ratio is less than 1 this imply the business is not able to pay off its short- term debts due. hence, the current ratio explains to investors how the company can cover the short-term debt with its current assets.

As a result, the current ratio in the grocery sector is always low, as they can get cash from customers before they need to pay their suppliers. Furthermore, they have a high inventory turnover from daily sales which creating cash inflows on a continuing basis. In other words, the short-term debt can be pay off with ongoing sales. In this case, Sainsbury's in each year show a low and steady current ratio as always less than 1. Of course, even in this case, in 2020 the current ratio presents a lower figure by considering the huge amounts of suppliers during the Covid 19 Pandemic.

Quick ratio

The Quick ratio or acid test is a tool to which calculates whether the company is able to meet its short-term obligations with its short-term liquidity. in other words, it indicates the quick use of its cash to pay the current liabilities. if the company, shows a quick ratio less than 1, it means that the company cannot pay off its current liabilities. On the contrary, a ratio higher than 1 imply that the company can get rid of its liability as soon as possible. However, in retail business the quick ratio less than 1 is acceptable because according to this kind of products, the inventory cycle is short and so the retailers keep the stock volumes at minimum level. Furthermore, in the grocery stores, many food manufacturers can sell their product without asking for immediate payments. In fact, the grocery stores have a large amounts of trade payables that increase the real amount of current liabilities. Therefore, the quick ratio as well as the current ratio are low. The quick ratio showed from the Sainsburys has a balanced level from 2016 to 2018 by increasing of 0,7% in 2018. As a result of the current ratio, also, the quick ratio has a lower level of 0.48 in 2020 by considering the high demand on the grocery's sector.

Cash Ratio

The cash ratio measure how the company, is able to pay off its current liabilities through only cash or cash equivalents (assets that can be converted in cash within 90 days.). A ratio less than 1 imply that the company manage to pay off the current liabilities and cash equivalents, i.e., the company can pay easily the debts. On the contrary, whether the ratio presents a figure less than 1 it means that the company has insufficient cash to pay the current liabilities. the difference the quick ratio and current ratio is that the cash ratio is the most stringent and conservative (Eugene F. Bringham., 2013). In other words, it indicates to analysts how the current asset can be turn into cash as quick as possible. As a result, Sainsbury's display a low cash ratio from 2016 to 2020, because, the bigger grocery stores like Sainsbury's tend to keep a low levels of current assets, as they have an high inventory turnover from daily sales, by creating a cash inflows constantly. In other word the current assets of grocery's stores can be more easily convertible to cash than those in some industries.

2.6 COMPARISON WITH MORRISON

Profitability ratio

the grocery's sector, usually has a low profit margin because they operate a low price. If we compare the financial performance of profitability ratios between Morrison and Sainsbury it results that Morrison has a lower gross profit margin of 3.5% in 2019. It means that Morrison, has an executive management that generating less revenue by considering the cost involved in producing the products and service. In other words, it indicates the amount of profit before administrative cost and general expenses and how create revenue by considering the costs that are directly linked with the production. However, the net profit margin of in 2019 is 1.98%. it is higher than Sainsbury's in 2017, 2018 and 2019, so this imply that Morrison is more efficient to converting sales into profit than Sainsbury's because, may have an efficient management.

The return of Equity (ROE) of Morrison is higher than Sainsbury's at each year. Indeed, in 2019, Morrison shows a return of equity of 7.6%, so, higher in each year's Sainsbury's. it means Morrison is more profitable by considering the shareholder's equity. Hence, Morrison is more efficient to create Net income by using the stockholder's equity.

The same situation in the return of asset (ROA), Morrison shows a ROA of 3.1% in 2019, also in this case higher than at each year's Sainsbury's. Hence, it implies, Morrison receive more profitability from its assets in 2019 than Sainsbury's in each year. In other words, the Morrison's assets are more efficient than Sainsbury's assets

Efficiency ratio

As a result, the fixed asset turnover ratio of morrison's is lower comparing between 2017, 2018, and 2019 to Sainsbury's so this is because Morrison generate lower sales by using the fixed asset such as property, plant equipment and then has a lower return of investment by considering these kind of assets. In other word, Sainsbury's is more efficient to produce sales by using machine fixed asset.

Morrison displays, a total asset turnover ratio of 1.60 so higher than Sainsbury's. it means, Morrison uses its assets efficiently than Sainsbury's to which shows the ratio significantly lower from 2016 to 2019. It may indicate that Morrison use its asset more efficiently due to a good inventory management, a high production capacity and an efficiency collection method.

Leverage ratio

In general, the grocery's sector presents a debt to capital ratio lower. this is because of the higher demand that they have. As a result, Morrison present a debt to capital ratio of 0,23 lower than the 2016, 2017 and 2018 of Sainsbury's. This indicate that Morrison results less risky than Sainsbury's so it has a great financial structure, by having more assets and so it can deal with its obligation. In other words, Morrison has a greater flexibility in terms of raising additional capital via debt. However, the ratio results different in the two- year period 2019-2020 in which Sainsbury's present a lower debt to capital ratio than Sainsbury's

The debt to Equity ratio is 0.296 for Morrison. It indicates that Morrison has a Ratio slightly better than Sainsbury's. By comparing in three years 2016, 2017 and 2018. This imply that Morrison is finances itself more through its resources(Equity) than the creditor financing(Bank loan). In other words, Morrison pay its debt more through its finances, i.e., the equity capital than Sainsbury's that result to receive more funding through the capital debt, i.e., the creditors such as the loan from a bank. Thus, Morrison result more stable than Sainsbury's. However, the situation is different by comparing the 2019. In this case Sainsbury's has a debt to equity ratio of 0.210, better than Morrison.

Liquidity ratio

As a result, the current ratio of Morrison in 2019 is lower than the current ratio of Sainsbury's by considering all 4 years from 2016 to 2019. The current ratio of Morrison is just 0.39. whereas, Sainsbury's, is much better. This indicate, the likely that Morrison has difficulty to repay the short-term obligations by using its current assets. On the contrary, Sainsbury's that has a great current ratio, it is able to handle the short-term debt through the current assets.

The quick Ratio of Morrison in this case, is 0,195. It means that the company is not be able to pay off, in the short- term its current liabilities. Sainsbury's indicates a quick ratio very higher than Morrison, by considering each year. Indeed, this indicate that Sainsbury's can use its cash or quick assets to extinguish its current liability in a quick way than Morrison. However, the lower quick ratio in the grocery sector is considered acceptable because the grocery stores tend to have a low level of

current assets without keep enough cash. So, the liabilities coming due can be repay off with ongoing sales. thus, the lower ratio of Morrison it means also more sales.

As a result, Sainsbury's has a higher cash ratio in each year than Morrison. Morrison in 2019 has a cash ratio of 0.090. it implies that Morrison don't have adequate cash or liquidity to pay off its current short-term debt in due time. However, Sainsbury's shows a higher ratio than Morrison, so it means that has more liquidity than Morrison to repay the short-term debt. Indeed, it could mean that Sainsbury's has an account payable turnover-the amount of time to convert inventory into cash more efficient.

2.7 RECOMMENDATION

In Nowadays, the Covid 19 pandemic had a huge impact upon our life, in particular, in the grocery's sector. As a result, many companies must rethink their strategies so that to thrive and to have a huge profits. In this case, Sainsbury's should invest more to enhance the online sales, and so to create an omni-channel distribution that take into account the prices and the preferences of customers. the online grocery could become more efficient, if the retailers can reduce the delivery costs. Indeed, is important to relocate more store possible closer to the city centers because, they could reduce about 10% the delivery costs (Mckinsey, 2018). As a result from the leverage ratio, Sainsburys has a huge quantity of capital, i.e., has a great financial structure to invest in innovation, technology and to create an efficient platform online as well as to improve their stores by hiring more staff and make the stores more efficient. In according to McKinsey study, more grocery stores, have been starting to put the technology in all part of the value chain. Indeed, it proved that the adopters of new technologies have had an increasing from 2% to 5% more in EBIT By using digital solutions such as artificial intelligence in the store and warehouse process as well as back-office operation. (Mckinsey, 2018).

Part 3

3 PAYBACK PERIOD

Payback period project A

Cumulative cash flow project A Investment 85£

1 year = 10£

2 year = $10 + 20 = 30$ £

3 year = $10 + 20 + 40 = 70$ £

The deficit is $85 - 70 = 15$ £

$$15/55 = 0,27$$

$$\text{PBP} = 3.27 \text{ years}$$

The payback period for project A is between 3 and 4 years, because by calculating the cumulative cash flow in year 3 there is a cumulative cash flow of 70£. However, by calculating at 4 year we notice that the cumulative cash flow is over the investment of 125£. Therefore, the payback period is given by doing the difference from the initial investment of 85£ and the cumulative cash flow at 3 years of 70£ and then by dividing it with the surplus which is 55 ($15/55=0.37$). So, the payback period is 3.27 years. It implies that the project, re-pays the company from the investment after 3 years.

Payback Period Project B investment 90£

$$1 \text{ Year} = 25£$$

$$2 \text{ year} = 25+30 = 55£$$

$$3 \text{ year} = 55+35 = 90£$$

$$\text{PBP} = 3$$

The project B shows that the payback period is catch at 3 year. So, in this case, the investment achieved the break -point of 90, at the third year

The company must choose the project B, as the project will start to repay the investment after 3 years. unlike of the project A, which start to repay the investment in 3 effective years.

The payback period is a method that evaluate the time that the project it takes to repay the cost of an investment. In other word, it says how much time it takes to reaches the break-even point. The PBP is useful because is simple both to calculate and to understand from managers that need to understand how long the investment take to recover the initial cost. However this method is used from the small and medium firms by a lot, because being simple to calculate. it can use in a short-term investment unlike, the big companies which are engaged in long- term planning (Lefley F., 1996) . furthermore, the payback period doesn't consider the return after the payback period. In other words, it ignore the period post payback as well as it not consider the time value of money either (Paul M. Collier, 2015)

4 ACCOUNTING RATE OF RETURN

Project A

Total cash inflow = $10+20+40+55=125\text{£}$

Total cost of investment = 85£

Total profit = $125-85=40\text{£}$

Annual average profit = $40/4=10\text{£}$

ROCE 1 = $10/85=0,112$

ROCE 2 = $10/42.5=0,235$

In this case the project A will return a profit of 0.235 or 23,5 %. In other words, for every pound invested the company will get 23,5% of investment

Project B

Total cash inflow = $25+30+35+40=130\text{£}$

Total cost = 90£

Total profit = $130-90=40\text{£}$

Annual average profit = $40/4=10\text{£}$

ROCE 1 = $10/90=0,111$

ROCE 2 = $10/45=0,222$

In the project B the ARR is 0,222, it implies that the company will get from the investment 2.22%. for every pound invested the company will get 2.22 %

By comparing the 2 projects, is obvious that the company will choose the project A since it turns out more profitable by giving 23.5% of future net earnings than Project B, which result less profitable by giving 2.22%

The accounting rate of return, indicate the rate of return of a determined project than the initial cost that the company invested. In other word, indicate how the investment is attractive than other investment. (Richard P. Brief, 1991) This formula take into account the depreciation which, consider the cost of asset is spread equally throughout the life of assets. Furthermore, the ARR, considers the average rate of return, return of investment(ROI), and return on capital employed(ROCE). However, this method presents some limitations, In particular((Paul M. Collier, 2015):

-the ARR doesn't consider the time value of money so a pound that I have now is consider equal in the future.

-It doesn't consider, the change in profit that may result year by year.

The literature review demonstrate that the ARR is not accurate than IRR(internal rate of return). In according to Fisher and McGowan, they made an analytical project in which demonstrated that the ARR is not accurate as IRR for the firm when they investing in individual projects (Fisher, 1983). The same opinion Kay, that discovered with a mathematical relationship between IRR and ARR and demonstrate that the IRR is more efficient than ARR (Kay, 1976)

5 NET PRESENT VALUE

Project A

$$NPV = i_0 + \frac{C_1}{(1+r)}$$

$$NPV = -85 + \frac{10}{(1+10,5\%)} + \frac{20}{(1+10,5\%)^2} + \frac{40}{(1+10,5\%)^3} + \frac{55}{(1+10,5\%)^4} = 6.966$$

The project A is 6.966 it means is positive and create value. Thus, it implies that the project earnings of 6.966£

Project B

$$NPV = -85 + \frac{25}{(1+10,5\%)} + \frac{30}{(1+10,5\%)^2} + \frac{35}{(1+10,5\%)^3} + \frac{40}{(1+10,5\%)^4} = 9.964$$

The project B, is 9.964 so the project is >0 so it has a net present value positive thus, it generate earning of 9.964.

By comparing the 2 project the company should choose the project B, because has a net present value of 9.964 than project B that has a net present value of 6.966. both projects are positive but the project A cover the initial investment more than project B.

The Net present value is the most efficient method to evaluate the value of the investment. This method discounts the future cash flows that result from the investment. One of the most important principle of this approach, is that the value of money today worth more than the future, by taking into account the inflation and the future revenue that stem from other investments during the time (Zizlavsky, 2014). If the net present value gave a positive value, the project is positive, it implies that the company can make this investment to get earning going forward. On the contrary, whether the value is negative the project results negative, so, it won't be profitable for the company. The businesses usually take into account the projects that demonstrate an higher net present value because this method is more sophisticated than Both ARR and payback period method(PBP) because they don't take in consideration the time value of money, which result fundamental to make an investment for the future (Paul M. Collier, 2015). However, the net present value evaluates just the probability of success of an investment so it's is essential that the companies consider that the probability of success in the development process is modified. (Schmeisser, 2010)

To conclude, By doing a comparison between the three methods, it can note, that the net present value (NPV) is the best method to evaluate and choose an investment. The NPV evaluate in an efficient way, whether the project creates a value for the company, by considering the time value of money. thus, in this case, the company should invest in the project B by considering the net present value method.

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